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THE

AMERICAN JOURNAL

OF THE

MEDICAL SCIENCES.

Vol 19 38

No. XXXVIII.—February, 1837. 24

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TO READERS AND CORRESPONDENTS.

The following works have been received:—

Pathological Researches on Phthisis. By P. Ch. A. Louis, M. D. P., &c. Translated from the French, with introduction, notes, additions, and an essay on treatment, by Charles Cowan, M. D., &c. &c. Revised and altered, by Henry J. Bowditch, M. D. Boston: Hilliard, Gray & Co., 1836. (From Dr. Bowditch.)

A Letter from Dr. Brigham to David M. Reese, M. D., author of Phrenology known by its fruits, &c. Hartford, 1836. (From the author.)

Memorial on the state of Medical Education in South Carolina. Delivered by James Moultrie, M. D., in the Representative Hall, December 5th, 1836. Charleston, 1836. (From the author, and from Dr. R. W. Gibbes.)

A Manual of the Diseases of the Eye. By S. Littell, Jr., M. D., one of the Surgeons of the Wills' Hospital for the Blind and Lame, &c. Philadelphia, 1837. (From the author.)

Principles of Pathology and Practice of Physic. By John Mackintosh, M. D., Lecturer on the Practice of Physic in Edinburgh, &c. &c. &c. Second American from the fourth London edition. With notes and additions, by Samuel George Morton, M. D., late Physician to the Philadelphia Almshouse Hospital, and Lecturer on Pathological Anatomy, &c. &c. 2 vols. 8vo. Philadelphia, 1837. (From the editor.)

A Catalogue of the Officers and Students of Transylvania University, Lexington, Kentucky. January, 1837. (From Prof. Short.)

Circular and Catalogue of the Faculty and Students of the College of Physicians and Surgeons of the Western District of the State of New York, in Fairfield, Herkimer county, 1836–7. Albany, 1837. (From Prof. Mussey.)

The British and Foreign Medical Review, for October, 1836. (In exchange.)

London Medical Gazette. (In exchange.)

The Edinburgh Medical and Surgical Journal, for July and October, 1836. (In exchange.)

The Medico-Chirurgical Review, for July and October, 1836. (In exchange.)

The London Medical Gazette, for September and October, 1836. (In exchange.)

Revue Médicale Française et Etrangère, July and August, 1836. (In exchange.)

Journal Hebdomadaire des Progres des Sciences Médicales, July, August, September and October, 1836. (In exchange.)

Journal de Pharmacie, July, August and September, 1836. (In exchange.)

Journal de Medecine et de Chirurgie Pratiques, August and September, 1836. (In exchange.)

Gazette Médicale de Paris, July, August, September and October, 1836. (In exchange.)

Journal des Connaissances Médico-Chirurgicales, August, September and October, 1836. (In exchange.)

Journal des Connaissances Médicales, April and May, 1836. (In exchange.)

Bulletin Genéral de Thérapeutique, August and September, 1836. (In exchange.)

Boston Medical and Surgical Journal, November and December, 1836, and January, 1837. (In exchange.)

The United States Medical and Surgical Journal, September and October, 1836. (In exchange.)

The Southern Medical and Surgical Journal, November, 1836, and January, 1837.* (In exchange.)

Western Journal of the Medical and Physical Sciences, September, 1836. (In exchange.)

The Select Medical Library and Eclectic Journal of Medicine, November and December, 1836, and January, 1837. (In exchange.)

Authors of new medical books, desirous of having them reviewed or noticed in this Journal at the earliest opportunity, are invited to transmit to the *Editor* a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances, very considerable delay is caused by the circuitous routes through which they are received.

Papers intended for publication should be sent, *free of expense*, as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "Carey, Lea & Blanchard, Philadelphia, for the *Editor of the American Journal of the Medical Sciences.*"

All letters on the *business* of the Journal to be addressed exclusively to the publishers.

* Nos. 2 and 7 have not come to hand.

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An Anatomical Commentary on the structure and developement of the Secernent Glands in man and animals. By Johannes Mueller, Doctor of Medicine and Surgery; Professor of Medicine in the Frederic-Williams Literary University of Bonn on the Rhine; Member of the Imperial Leopold-Charles Academy of Nature, &c. Leipsic, 1830. - - - 419

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On the Treatment of the Venereal Disease without Mercury, or an Account of the Non-mercurial Remedies recommended for its Cure; together with a Short Notice of the Antiphlogistic Treatment of the Disease pursued in the General Hospital of Hamburg. By W. F. Oppenheim, M. D. - 451

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THE

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OF THE

MEDICAL SCIENCES.

ART. I. *On the Typhus Fever, which occurred at Philadelphia in the spring and summer of* 1836*; illustrated by Clinical Observations at the Philadelphia Hospital; showing the distinction between this form of disease and Dothinenteritis or the Typhoid Fever with alteration of the follicles of the small intestine.* By W. W. GERHARD, M. D., one of the Physicians to the Hospital.

During a residence of two or three years at Paris, I had studied with great care the pathology and treatment of the disease usually termed, in the French hospitals, typhoid fever or typhoid affection. There is another designation for it, founded on its anatomical characters, and therefore more directly in accordance with modern medical nomenclature; it is dothinenteritis. This variety of fever, which is identical with the disease termed typhus mitior or nervous fever, is frequent at Paris, and is almost the only fever which can be said to be endemic there. Intermittent and remittent fevers are rarely seen, except amongst those individuals who had already contracted some form of these diseases in the malarious districts of France. Some slight fevers, attended with a whitish or yellow tongue and gastric symptoms, occasionally occur; they scarcely assume the form of a fixed disease, and usually disappear under a very simple treatment.

These fevers were the only ones known at Paris for some years past; but in 1813-14, there occurred a severe epidemic fever, character-

ized by extreme prostration and strongly marked cerebral symptoms. This epidemic was first noticed amongst the troops who returned from Napoleon's unsuccessful campaigns in Germany and the east of France; it afterwards spread amongst the inhabitants of Paris and other large cities, and was every where extremely fatal. No accurate description of this fever is on record, although it was witnessed by several of the most distinguished French physicians. Some of these, more especially Louis and Chomel, are inclined to consider it as identical with the prevailing dothinenteritis, but their opinion is probably erroneous, and the disease, as far as we know, should be classed amongst the forms of continued fever, distinguished by the terms typhus, typhus gravior, petechial or spotted fever, &c.

There are, however, complete histories of the typhoid fever or typhoid affection, or dothinenteritis, (all names belonging to one disease.) It is one of the most frequent and the most severe acute affections observed at Paris, and has been studied with extreme accuracy, more especially by Louis and Chomel, who have both published admirable descriptions of it. The work of Dr. Louis is especially interesting, and is a model in its kind; he has analyzed the symptoms and pathological phenomena of the fever so accurately and fully, as to surpass any other description of individual diseases. The typhoid fever was placed by this work of Dr. Louis, in the same relation to other fevers that pneumonia holds in reference to the affections of the chest. They are both so well studied, and their symptoms are so well known, that they serve as types with which other less thoroughly understood affections may be compared.

It affords us, then, great advantages in the investigation of the history of fevers, to begin with the typhoid, as the best known of these affections. Assuming this disease as the basis of our investigations, one great point is gained, and much greater certainty can be given to our ulterior researches, if we compare the symptoms of any fever which is little known and imperfectly described, with those of the typhoid fever, or dothinenteritis, as it is now frequently called from its anatomical lesion.

This inquiry was in accordance with a desire which I had long cherished of investigating the most common fevers in the middle states of America, where, from our geographical position, we witness the fevers observed at the northern, and occasionally those of the southern states. The commercial relations of Philadelphia are so frequent with the whole southern coast of the United States, and the passage to the north so rapid in the summer and autumnal months, that we receive into our

hospitals a considerable number of patients taken ill on the coast of North Carolina, Virginia, and even Alabama and Louisiana. There are, therefore, few places where such a study could be pursued to more advantage than at Philadelphia. During the last three years of a constant connexion with our largest hospitals, either as resident or attending physician, I have not lost sight of this object of study, and I have already published in the American Journal for the year 1835, some cases of the dothinenteritis as well as of the remittent and intermittent fevers.

Dothinenteritis is by no means a rare disease at Philadelphia, although less common than at Paris. In the essay alluded to, I established the identity of the anatomical characters and of the symptoms of the fever, occurring at Philadelphia, with that observed at Paris. I also showed that the patients were chiefly those who had resided but a short time at Philadelphia, and that they were taken ill on ship-board, or under some other circumstances causing an abrupt change of food and habits of life. They were also young persons, but few having passed the age of twenty-five years. Both these conditions of age and change of habit are observed to be essential to the developement of typhoid fever at Paris.

Having once established the complete identity of a fever which is so common at Paris and so well described, with a similar affection, not unfrequently met with at Philadelphia, I examined the pathological phenomena of our remittent and intermittent fevers of the severe malignant character so frequently observed along the southern coast, and sometimes occurring in those malarious parts of the country which are situated within a short distance of Philadelphia. In all these fevers, the glands of Peyer as well as the other intestinal follicles, were found perfectly healthy; the large intestine was occasionally but not constantly diseased, while the stomach, and to a still greater degree the liver and spleen were invariably found in a morbid condition. If the fever proved fatal in the course of the first fortnight, the liver and spleen were softened as well as enlarged; but if the disease assumed a more chronic form, the viscera were hardened as well as hypertrophied. The latter state was the first stage of these chronic lesions which are formed in the livers of patients long affected with remittents or intermittents, and which continue throughout the course of the ascites, which is so common a consequence of these diseases. I made numerous examinations of the bodies of patients who died of the same variety of malignant remittent and intermittent during the summer of 1835, and still more frequently in the epidemic of 1836, a year in which these diseases have been unu-

sually fatal throughout the southern states. The results of these late examinations have confirmed those already obtained, and showed that the follicles of the small intestine are free from lesions, and that the anatomical character of the disease is to be looked for in the spleen, liver, and stomach.

The bilious and yellow fevers are probably referrible to the same class as the malignant remittents, but in yellow fever the disorganization seems to be most extensive in the stomach, whence arises the black vomit, which forms a characteristic symptom of the disease. Bilious fever, or, in other words, the remittent fever attended with unusual alteration of the liver and a disordered secretion of bile, is common with us. Yellow fever is rare, and occurs in an epidemic form at such long intervals, that I have seen but few cases of it.

The typhus fever, which is so common throughout the British dominions, especially in Ireland, is not attended with ulceration or other lesion of the glands of Peyer.* From the account of the lesions presented by most of the writers upon the subject, it would seem that there is no constant anatomical lesion, but that the lungs present traces of disease more frequently than any other organ. My own observation of this variety of fever was limited to the examination of the fever patients under the care of the late Dr. Gregory of the Edinburgh infirmary. This observation was not sufficiently long or accurate to enable me to do more than refer to those physicians who have enjoyed extended facilities for the study of this affection. The lesion of the glands of Peyer is now well known to the British physicians, but an error frequently committed by them is that they regard this affection (dothinenteritis) as a mere complication of their ordinary typhus, or a modified form of it. At least I do not at this moment recollect any one who has clearly stated that the two diseases are always distinct, before the publication of a note in the Dublin Journal, by Dr. Lombard of Geneva, (Sept. 1836.)

It is not possible to set this matter at rest, unless a series of accurate histories of typhus with detailed symptoms and pathological lesions should be published by British physicians. With the aid of a statement of this kind, such a comparison might be made as to set the points of difference between the ordinary British or Irish typhus and the dothinenteritis of France in their true light. From the information we possess, we should conjecture that the two diseases are widely and entirely different in symptoms, anatomical cha-

*I mean that this lesion, when it occurs, is merely accidental or a complication not occurring in the ordinary course of the disease.

racters, treatment, and mode of transmission. But the British typhus seems to us to be identical with the disease which forms the subject of the present memoir, and is apparently the same affection which is variously designated: typhus gravior, ship fever, jail fever, camp fever; sometimes petechial or spotted fever. The term typhus mitior of the older writers seems nearly synonymous with that of typhoid fever or dothinenteritis of the French physicians.

In America there have occurred several epidemics of fever more or less similar in their nature to the British typhus. Some of these were confined to the New England States, where they were often known under the name of spotted fever, and are described by North, Hale, and others. Other epidemic diseases of a similar type extended to a larger district of country and overran a considerable portion of the Middle States, causing extensive ravages both in town and country. It was of epidemics of this kind that many distinguished physicians of Philadelphia perished in different years, amongst them were the professors of the University, Rush, Wistar, and Dorsey. No distinct history of the typhus fevers which prevailed at Philadelphia at different periods between the years 1812 and 1820 is on record. I mean such an account of the disease as makes its diagnosis so clear that there can be no danger of confounding it with other analogous affections. The fever was well studied by the physicians who practiced at that time, but the habit of analyzing symptoms had not been introduced, and their experience, however valuable to themselves, was in a great degree lost for their successors. These remarks are so true, that although an eminent physician of Philadelphia pronounced the epidemic of 1836 to be the same as that of 1812 and succeeding years, another distinguished medical gentleman who was not familiar by his own experience with the former disease, considered them as distinct affections, and that the one which first occurred was a low grade of pulmonary inflammation.

That the fevers were really identical, was proven by the opinion of Dr. Parrish, one of the most experienced physicians of Philadelphia, who practiced very extensively amongst all classes of inhabitants in the winter of 1812-13, and was remarkably successful in his treatment of the prevailing fever. He saw some of the cases at the Philadelphia Hospital in 1836, before the disease had extended to the wealthier classes, and immediately recognised its true character.

For a period of at least ten years there has been no epidemic of this nature at Philadelphia. In the year 1827, a large number of Irish emigrants were ill of a typhoid fever, with ulceration of the small in-

testines, which was probably dothinenteritis, and during several successive years there were more or less extensive epidemics of remittent and intermittent fevers, occurring in the neighbourhood of the city, but not often extending into the central parts of the town. Occasionally, sporadic cases of fever of a comatose or typhoid character would occur, but these cases were nearly always either some form of malignant remittent, or else they occurred during the winter months, and were complicated with pneumonia. The inflammation of the lungs then appeared as the first stage in the disease, which afterwards assumed those cerebral symptoms of stupor and feebleness which have procured for it the designation of pneumonia typhoides. These cases I often witnessed while resident physician of the Almshouse infirmary during the years 1828-30.

At Boston, in the year 1833, there was an epidemic dothinenteritis of extreme gravity and unusually fatal. This fever was well studied by the late James Jackson, jr., and other physicians, and was proven by them to be identical in symptoms and pathological lesions with the typhoid fever of Paris. Some of the physicians of that city are inclined to regard their former epidemics as of this nature, but this opinion seems to us more than doubtful. Since the epidemic, the typhoid fever is there a common sporadic disease, rather more frequent apparently than at Philadelphia.

In the winter of 1835-6, there was an unusual number of cases of gangrene of the lungs at the Philadelphia Hospital, and but few of decided pneumonia. Several cases of dothinenteritis occurred in the autumn, but there were few afterwards. During the winter, a form of fever not commonly met with at the hospitals, was observed from time to time. It was characterized by pungent burning heat of the skin, dusky aspect of the countenance, subsultus, delirium, with great stupor and prostration; but there was no diarrhœa, and but few other symptoms referrible to the alimentary canal. It was the disease which afterwards appeared as an epidemic. At first it was not well understood by us, was sometimes confounded with bronchitis or pneumonia typhoides, from the complication of pulmonary disease with the symptoms of the fever. These cases recovered under the use of a mild stimulating and supporting treatment, with one exception, in which death ensued from sloughing of the sacrum and gangrene of the lungs.

In the early part of the month of March, the admissions for the fever were more numerous. They attracted the greater attention from their occurring in groups of several from the same house, and almost all coming from a particular neighbourhood. Amongst the very first admitted were seven negroes, the entire population of a

cellar in the lower part of the city. The symptoms varied but little in the seven cases, and upon an examination of two of the number who died, no lesion of sufficient importance to account for the symptoms could be detected.

As soon as these patients were admitted, I resolved to note with care the pathological lesions presented by the bodies of most of those who should die of the fever, examine its symptoms and ascertain the influence of therapeutic agents upon it. This research was commenced with a view to obtain more precise notions as to the character of an epidemic which has probably more than once appeared in America, and seems to be endemic in Great Britain and Ireland. It was especially desirable to ascertain if there was a real fundamental difference between the form of disease which prevailed this year and the dothinenteritis which is always to be met with in America, as a sporadic affection. My friend and colleague, Dr. Pennock, had charge of one half the medical wards of the Philadelphia Hospital; his observations were conducted at the same time with my own, but the autopsies and the examination of doubtful cases were always made in the presence of both of us. Dr. Pennock noted a large number of cases, and has given me the privilege of adding his collections to my own. They are the more valuable from the familiar knowledge which he obtained of the dothinenteritis in the wards of La Pitié at Paris. Our inquiries were conducted so much in concert, and our opinions as to the symptoms and treatment of the fever were so often compared together, that this memoir is in most respects the expression of the results obtained by our joint labours.

A portion of the cases were treated by Dr. Pancoast; of these I have no notes excepting such as were obtained from the registers of the wards; they were chiefly admitted towards the close of the epidemic season, when we had already procured a large mass of materials.*

Many of the observations are deficient in the history of the early symptoms, as the patients at their entrance into the hospital often did not retain intelligence enough to recollect the previous symptoms of their disease. The autopsies were always made with great care,

*These inquiries were greatly promoted by the zeal and industry of the resident physicians of the hospital, who were all much interested in the examination of the disease, and untiring in their efforts to relieve the suffering of patients, who always required much more than ordinary care. In the rotation of service the most arduous duty fell to the lot of Drs. Bush, Stillé, Patterson, Elmer, Frisby, and Johnson, of whom the two last mentioned were themselves attacked with fever.

more particularly the examination of the small intestines; but the weight of occupation and the ennui of recording results which varied so little among themselves, caused us to neglect committing some of them to paper. We have, however, noted in detail, a very large number, showing the nature of the lesions; and we always took great care to remark the diseased or healthy state of the organs. We are quite sure that nothing of importance escaped us, and, above all, that the condition of the follicles of the small intestine was carefully ascertained. Our mass of facts is so considerable, that many important questions will be solved by them in relation to the history of this form of continued fever. They will clear up many questions relative to the disease; for although few cases are as complete as we could have desired, the information which is wanting in one case may be gathered from others; none are deficient in all the particulars, or fail to give a tolerably exact statement of the symptoms at one period or other of the disease.

In our investigations, we availed ourselves of the opportunities we possessed to inquire into the pathological anatomy, the symptoms, the mode of communication, and the treatment of this fever, which had not been witnessed at Philadelphia for some years, even if it were the same disease as that of former epidemics. At each step of this progress, I shall compare the facts before us with those relating to the history of the typhoid fever, or dothinenteritis, and when the symptoms differ, it will be easy to draw the line of distinction between two diseases, differing in their treatment, symptoms, duration, and pathological lesions.

There is some confusion in the designations of these fevers, but it is not my intention to enter upon the discussion of their nomenclature. It is sufficient to state that in using the terms typhus, typhus fever, typhus gravior, spotted or petechial fever, I mean that disease which forms the subject of this memoir, and that by the terms typhus mitior, typhoid fever, or dothinenteritis, I mean the disease described by Louis, Chomel, &c., and attended with a lesion of the glands of Peyer.

The number of cases admitted with typhus, was 214. Of this number there were 120 men and 94 women. A few cases who were at the same time in the wards, and already under treatment for other diseases, are not included, although they were afterwards affected with the prevailing epidemic, but their names on the register present only the disease for which they had been admitted. The whole number of cases is, therefore, from 230 to 250. A large majority of the 214 patients were negroes or mulattoes, there were 147 people of colour

and 67 whites. The disease first appeared in the former class of patients, and always prevailed more extensively amongst them than the whites who were living in the same part of the town and exposed nearly to the same causes of disease.

The patients were taken with the fever in various parts of the city and neighbouring districts, but by much the greatest number came from that part of the town which extends from Lombard street to a little below Shippen, and from Fifth to Eighth streets; this small but crowded district became almost an infected suburb. Within these limits the poorest and most intemperate of the inhabitants of Philadelphia reside. It is the St. Giles or the Faubourg Saint Marcel of Philadelphia. The filthiest and most crowded alleys offered the greatest proportion of patients. Thus, Small street and St. Mary's street, with the numerous courts and alleys running from them, contained many more sick than other streets inhabited by a population nearly as poor and intemperate, but less crowded. The different streets were not infected at the same time, thus the earliest patients were taken ill in Shippen and in Small streets, while St. Mary's street, which furnished an immense number of patients, was comparatively free from infection until a month afterwards. The disease appeared very soon in the prison (now taken down) in Arch street, but as the inmates of the prison came in great part from the infected district, it is possible that the disease may have been introduced by those who were admitted while labouring under it. Towards the close of the epidemic, patients were admitted in considerable numbers from some of the streets in the Northern Liberties, and throughout its whole course there were scattering cases from different parts of the city, and a few from the country, where there were no others ill in the house from which the patient had come. But few cases, however, occurred in the central parts of the town, where the inhabitants are generally in easy circumstances, and comfortably fed and lodged.

Classes of persons affected.—The first patients were almost exclusively from the poorest and most intemperate class of people, chiefly day-labourers. Such was the case with most of the blacks, especially the men, who were almost without exception in the habit of drinking freely of ardent spirits. The women were without fixed occupations, or were servants out of place. As the disease extended to the different parts of the city, people of various occupations were affected, amongst them there was one respectable physician, who died of the fever. The extension of the disease to those in easy circumstances, was shown in the practice of several eminent physicians of Philadelphia; they had not seen a case until the fever had prevailed some

months at the hospital, although they afterwards met with it in their private practice.

Mode of propagation of the disease.—The origin of the disease is as unknown as that of most epidemics; according to the general rule, it attacked those who were sunk in poverty and intemperance, and huddled together in confined apartments. It also appeared at different and remote points, some miles distant from the focus of infection, without the possibility of tracing any direct communication between those already attacked. There was, thus, a general cause, which extended its influence throughout the vicinity of Philadelphia. But, besides the epidemic cause, from which the greater number of cases seemed to arise, the fever was evidently propagated in a considerable proportion of patients by direct contagion. Those who entered at an early period of the epidemic came in groups together, some from the prison, whole families from the same room or the same house. About that time, I made a careful inspection of the district as one of a committee of the Board of Health, and in some instances we found houses completely vacated, the tenants being either dead or at the hospitals. In other cases, the whole or a large proportion of the inhabitants of a room were ill. It was rare to meet with a severe case without seeing others in the same house.

The evidence of contagion at the Philadelphia hospital was more direct and conclusive. Three of the principal nurses, and about a dozen assistant nurses, besides a number of patients ill with various diseases were taken with the fever. The three principal nurses belonged, two to the wards for blacks, where there were the greatest number of fever patients, and the third to a ward for whites, where there were several cases. There was only one nurse of a ward in which many of the patients were collected, who escaped, but several of his assistants and patients were taken ill. Two of the resident physicians in attendance upon the same ward, where the patients were most numerous, were also severely ill with the fever. On the other hand, no nurse from the part of the hospital where there were but few or no typhus cases, suffered, and the number of patients taken ill in the surgical or lunatic wards was very small, not exceeding six in number. The wards in which fever patients were placed did not contain more than a third or a fourth of the population of the hospital, yet the number of cases originating in them after the first introduction of the disease was at least four times as great as in all the other parts of the building. The Alms-house and house of employment, which are separated from the hospital by a space of at least forty feet at the nearest points, furnished five or six cases, proba-

bly not more than the same number of poor in any other part of the neighbourhood would have done.

The proportion of attendants upon the sick who suffered was in exact relation to the number of fever patients in the ward; thus in the wards for blacks, (both men and women,) and in the men's medical, No. 1, scarcely an assistant escaped. In the other medical wards a few were taken ill, and in the surgical and lunatic wards all the nurses escaped. The matter of the contagion, be it what it may, was generally mingled with the air, but sometimes seemed to be combined with the pungent hot sweat of the patients. In some cases the contagion was evidently direct from body to body. This was established by the evidence of a nurse and an assistant, both persons of intelligence, and, from their familiarity with the disease, quite free from fear. The nurse was shaving a man, who died in a few hours after his entrance, he inhaled his breath, which had a nauseous taste, and in an hour afterwards was taken with nausea, cephalalgia, and ringing of the ears. From that *moment* the attack of fever began, and assumed a severe character. The assistant was supporting another patient who died soon afterwards, he felt the pungent sweat upon his skin, and was taken immediately with the symptoms of typhus.* The wards in which the fever patients were placed, were large and well ventilated. We were at first disinclined to believe that the disease would prove contagious, but as soon as the fact was clearly proven, measures were taken to remove the patients not yet affected from most of these wards, and, if it had continued for a longer period, an efficient local quarantine would have been adopted. Dead bodies either did not communicate the contagion or its influence was easily counteracted by favourable circumstances. Both Dr. Pennock and myself, and several of the resident physicians were engaged nearly every day during the most intense prevalence of the disease in making long and laborious anatomical investigations, without suffering from the fever.

It is very clearly proven that the typhoid fever or dothinenteritis, is not contagious. Dr. Louis informed me that, in the course of his long experience of the disease, he had never seen a single case originating in an hospital. I have seen but one. The contrast between the fevers, in this respect, is obvious.

Age of the patients.—After childhood, the age seemed to exercise but little influence upon the susceptibility to the disease. But children were rarely attacked by it. None of the children in the Asylum

*Two other cases of assistant nurses also originated from similar contact, but as they were persons of less intelligence, I have refrained from relating their cases as they offer less undoubted testimony.

attached to the hospital, where there were about two hundred, were taken ill. Nor in the inspection which I made as a member of the Board of Health, of the houses in the infected district, did I discover many children who seemed to be labouring under the fever. After childhood, the age of patients seemed nearly without influence. Thus, of sixty-six whites, there were thirty-five below the age of 35 years, and thirty-one beyond that age, and, on adding the number of nurses and patients taken ill in the wards, we shall increase the number of persons older than 35 years, or passed the middle of life. The blacks give a greater proportion of young persons, although there were patients amongst them who were far advanced in years. But their comparative youth is easily to be accounted for by the large number of blacks engaged as labourers and inhabiting the infected part of the town, very few of them are old or middle aged men. Another reason is the habit of the blacks to state themselves younger than they really are, partly from ignorance of the value of numbers and of the precise year of their birth. It would, therefore, give incorrect results to include them in our estimate. The age of these patients differs much from that of those affected with the typhoid fever or dothinenteritis, who are all younger, the disease almost never occurring above the age of 35 years, the average for Paris and Philadelphia is $22\frac{1}{2}$ and 22 years. (See Louis on Typhoid Fever and American Journal, 1835.)

The *sex* seems to exert little influence on the liability to the disease. The numbers were 120 men and 94 women, which is about the relative proportion of our ordinary patients. This result differs but little from that observed in typhoid fever, where, *cæteris paribus*, men are perhaps a little more subject to it than women.

The change of life and habits from country to town was of no importance, our patients were nearly all resident for some years at Philadelphia, and some had been paupers for many years; their food and mode of living remaining unchanged during that period. The disease was not, as dothinenteritis, nearly confined to those persons who had recently removed from one place to another.

Use of ardent spirits.—The most perfect temperance did not prove a safe-guard when exposed to the contagion, as was shown by the cases of two of the resident physicians and of many others. Still, as a large majority of our patients were known to be intemperate, it would at first sight appear that intemperance was a powerful predisposing cause. But the habits of the day-labourers are such that but few of them abstain from using spirits more or less freely, so that the number of typhus patients who were intemperate does not greatly differ from that of those affected with other acute diseases. Most of the women were not given to intoxication.

Season of the year.—The epidemic began in March, and continued until August. There were a few scattering cases afterwards. The summer was unusually cool, and the spring and winter cold. It was remarked, that as the summer advanced, and an epidemic dysentery appeared, the fever was changed in character, and frequently offered a new symptom, that is diarrhœa, which was wanting in the earlier months.

Occupation, &c.—Our tables do not give us all the necessary information on this subject, nor would it be quite correct to receive their statements. The number of patients admitted with acute disease from the better classes of mechanics was extremely small, unless the subjects of it had been reduced to poverty by previous intemperance. Most of the blacks, like others of their race, were employed as mere day-labourers, chiefly masons' labourers, and stevedores. The poorest classes, whatever might be their occupation, were evidently more exposed to the disease than those who were richer, chiefly, perhaps, from their crowded and ill-ventilated rooms, as few of them had actually suffered from want of a sufficient supply of food.

Colour.—The proportion of deaths amongst the black men was much greater than amongst the whites, thus of the whites, one died in $4\frac{2}{3}$; amongst the blacks, one in $2\frac{19}{28}$. Amongst the women the reverse was true; thus, one white woman died of $4\frac{3}{5}$; but only one coloured woman in $6\frac{1}{5}$ nearly. These two results would, therefore, appear contradictory, unless explained by other causes.

Age.—Twenty-two patients, eleven male and eleven female, both white and coloured, were admitted under the age of twenty, (from ten to twenty years,) of these not one died. Youth, then, was almost a safeguard against the danger of the fever, and this charmed age (from ten to twenty) was as free from the danger of petechial fever, as from most other causes of death. From the age of twenty to thirty, of women there died one in $5\frac{1}{5}$, and in men nearly one in 4. It should be recollected that the largest proportion of deaths amongst the men of the age above-mentioned, occurred in blacks, who notoriously underrate their ages, especially the men who were employed in occupations and under circumstances which rendered it difficult for them to fix their dates as accurately as the women, many of whom were domestic servants. Amongst the whites the mortality of the men between the ages of twenty and thirty was only a twelfth, but amongst the women it was as high as a fourth. Therefore, after making allowance for the causes of errors alluded to we shall have but a small difference in favour of women under the age of thirty. The deaths amongst the women above the age of thirty were one in five

nearly. The influence of treatment upon the mortality will be afterwards noticed.

Pathological Anatomy.—Dr. Pennock and myself examined a very large number of the bodies of those patients who died of the fever. Indeed, during nearly the whole epidemic scarcely a single examination was omitted, excepting in cases where it was impracticable from the removal of the body by the friends, immediately after death, or where putrefaction supervened, as it sometimes did almost immediately after dissolution. In this large number of autopsies, amounting to about fifty, there was but in one case, and that doubtful in its diagnosis, the slightest deviation from the natural appearance of the glands of Peyer. In the case alluded to, in which there had been some diarrhœa, the agglomerated glands of the small intestine were reddened and a little thickened; but there was no ulceration and no thickening or deposit of yellow puriform matter in the submucous tissue. The disease of the glands resembled that sometimes met with in small-pox, scarlet fever or measles, rather than the specific lesion of dothinenteritis. In all other cases, the glands of Peyer were remarkably healthy in this disease, as was the surrounding mucous membrane, which was much more free from vascular injection than it is in cases of various diseases not originally affecting the small intestine.

The mesenteric glands were always found of the normal size, varying, as in health, from the size of a small grain of maize to three or four times these dimensions. With the exception of a slightly livid tint, common to them and the rest of the tissues, they offered nothing peculiar either in consistence or colour.

The spleen was of the normal aspect, in one half the cases, in the other half it was softened, but not enlarged, and in one case out of five or six, enlarged and softened.

Thus, the triple lesion of the glands of Peyer, mesenteric glands and spleen, constituting the anatomical characteristic of the dothinenteritis or typhoid fever, although sought for with the greatest care, evidently did not exist in the epidemic typhus. Indeed, it was a subject of remark, that in the typhus fever the intestines were more free from lesion than in any other disease accompanied by a febrile movement. This exemption extended to the large intestine until the summer heats began, when a few scattering cases offered some symptoms of diarrhœa, during the prevalence of an epidemic dysentery; and, where they terminated fatally, softening and other signs of inflammation of the mucous coat of the colon were observed.

The fact that the morbid changes pathognomonic of dothinen-

teritis, are not met with in the typhus fever, would of itself seem conclusive that the two diseases are no more identical than pneumonia and pleurisy. Although, in some respects, the two affections are analogous, and even similar, the radical difference of anatomical lesions is at least as well marked as the distinction between the symptoms. It is, indeed, singular that there should of late be a strong tendency to confound two fevers, which were regarded as entirely distinct by some of the older physicians. The prominent symptoms and difference of treatment being particularly well pointed out by Huxham.

We will now give a series of dissections in the different stages of the disease. Some of the cases are detailed at length, the notes of others are not published, excepting that portion which relates to the pathological phenomena.

Case I. A stout mulatto entered in June, 1836, with chronic disease of the heart and rheumatic pains. A mild treatment had been directed, when the patient was taken with the prevailing epidemic, and died on the fourth day.

Autopsy—fifteen hours after death.—Exterior—very muscular; no infiltration; moderate rigidity.

Head.—Blood darker and more abundant than usual in the outer surface of the dura mater, and in the sinus; arachnoid contains one to two ounces of serum; pia mater not injected, the largest veins only filled with dark blood. Brain firm, moist, but pale; central parts pale; a drachm or two of serum in each ventricle; cerebellum and adjoining parts firm and pale.

Neck.—Pharynx pale; larynx slightly injected; trachea brightly injected throughout its whole extent.

Thorax.—Right pleura dry, brightly injected over the diaphragm, where it presents an abundant net-work of vessels; the same injection extends to the aortal and pulmonary pleura. The serous coat in these portions is covered by a thin layer of false membrane, a little thicker than common writing paper, of a yellowish tint, easily detached from the serous coat. The lower lobe of the lung is of a dull red colour, not containing air, not granulated, rather hard, not friable, more like the splenetized lung of pleurisy than pneumonia. The other lobes are of a light red colour, firm, and not infiltrated. Bronchi rosy and natural, except in the lower lobe, where they are reddish, and contain a dark serum. The left pleura is not injected; offers no serum; lung grayish and easily compressed. Bronchi natural; pericardium contains no serum. *Heart* much enlarged, one half larger than the fist of the subject. Left ventricle offers a cavity scarcely larger

than natural, but its walls are about fourteen lines thick, of a deep red colour, and very firm. Columnæ carneæ much enlarged; mitral valve thickened from cartilaginous deposits within its substance; semi-lunar valves of the aorta contracted, cartilaginous, of irregular shape, so that they neither could close nor open completely the orifice.

Stomach distended, contains a whitish mucous liquid; mucous coat nearly removed in the cardiac half, light grayish pulp only remaining; the other coats thinned and softened. In the pyloric two-thirds the coat is mammillated, thinned irregularly, of a general bluish-red colour, without bright injection.

Small intestine contains the usual liquid, lined by a coating of white mucus, not injected or softened; mesenteric glands small and firm; large intestine contains healthy fæces, pale; liver rather larger and paler than usual, a little less consistent. Spleen softened, not enlarged. Kidneys dark but firm. Bladder contracted.

The next case which was treated by Dr. Pennock, is recorded in full, furnishing a complete account of both symptoms and pathological phenomena. In the autopsy which has already been inserted, the lesions are very slight, being limited to a partial disease and softening of the mucous coat of the great tuberosity of the stomach. The patient died four days after the supervention of the symptoms. It is the earliest case of death amongst those patients who had enjoyed a tolerable state of previous health; but more than one patient, exhausted by some chronic affection, such as consumption, were seized with symptoms of typhus, and were carried off within the first twenty-four hours. In such cases no trace of the passage of the fatal affection was left after death.

Case II. *Premonitory symptoms during four days:—Disease ushered in by chilliness, frontal cephalalgia, erratic pains, muscular soreness—Petechia on the fourth day—Type of fever remittent—Death on the twelfth day—Autopsy.**

March 17th. Margaret Walters, aged 24, has been assistant nurse in women's medical ward during the preceding month. Last summer she had intermittent complicated with severe neuralgia: her health, however, was entirely re-established; she was robust, and perfectly well until the 13th inst., when she experienced general muscular soreness, some sore throat, pain in the joints, constipation, languor, want of sleep, lancinating pain through the head and occasional tinnitus aurium, which symptoms, attended with a voracious appetite, continued during the four succeeding days, but did not oblige her to discontinue the

*Case from the note-book of Dr. Bush, resident physician.

performance of the ward duties until this morning. At the hour of the visit (10 o'clock, A. M.,) she presented the following symptoms: embonpoint considerable; intelligence languid; position in bed indicative of feebleness; surface of body warm, horripilations; great pain in the head and small of the back; lower extremities feel sore; expression of countenance anxious and distressed; sighs frequently; eyes languid, light is unpleasant; capillary circulation of face, which is flushed, active; tongue moist, slightly coated with light yellow fur; offensive odour of the breath; anorexia, with nausea and bitter taste in the mouth; great thirst, desires cool acid drinks; no soreness of throat; deglutition easy; constipation; no eruption or spots on the body. Pulse irregular, 68, of medium volume and force. Respiration 40, pure and expansive over the chest. Treatment: apply dry cups, No. 6, until vesication takes place, to the nape of the neck and small of the back; sinapisms to feet; farinaceous diet; mineral water.

18*th.* 8, P. M., muttering delirium, but no sleep during last night; intelligence obtuse; skin was warm and dry this morning, accompanied with intense headache, it is now covered with perspiration, and the cephalalgia has diminished; face flushed; tongue moist, coated with white fur; much thirst; herpetic eruption about mouth; anorexia; some tympanitis, but no pain on pressure of abdomen. Pulse irregular, intermittent, about 68, soft, weaker than yesterday; respiration irregular—this morning it was 50, it is now 32. Dry cups, No. 15, were applied over the thorax this morning; alvine dejections were induced by mucilaginous enemata. ℞. Effervescent mixture ℥i. q. h., cold drinks; stimulating pediluvium. Sulph. morph. grs. $\frac{1}{8}$ q. b. h. until sleep takes place. Diet, sago.

21*st.* Patient has slept well for several nights, after taking small portions of the sulphate of morphia; exacerbations of fever have been observed at irregular intervals, though most marked in the afternoon. 10, A. M., expression of countenance is now idiotic; eyes half closed; mouth open; intelligence obtuse; hearing dull; disposition to sleep; cephalalgia much diminished; muscular soreness, pains in the back and articulations abated; cheeks of violet hue, with languid capillary circulation; skin warm, soft, disposed to moisture; tongue clammy, covered with a brown yellow coat, through which the papillæ are elongated; thirst, desires cold acid drinks; some appetite; no nausea; constipation; abdomen tympanitic, soreness on pressure; urine of deep red colour, without flocculi, resembling intermixture of blood and water, voided without pain or burning sensation. Pulse 72, regular, small volume, feeble. Respiration costal, 28. Percussion of thorax anteriorly resonant; the respiration is there expansive, with sonorous

and sibilant ronchi. At the back percussion is dull on inferior two-thirds, where the respiration is extremely feeble, almost suppressed, with subcrepitant rhonchus on forcible and full inspiration.

The surface of the neck, chest, abdomen, and arms presents a mottled appearance, in consequence of being covered with spots varying from one to three lines in diameter. The smaller are rose coloured, whilst the larger have a lilac hue; the first disappear upon slight pressure, the larger, on the contrary, are not so easily effaced, and reappear more slowly. Take ℥iv. of blood, by cups, from temples and back of the neck; carb. ammonia grs. xv. q. b. h. (in julep:) effervescent mixture ℥j. q. h. mineral water. Sponge with evaporating lotions, and exhibit cool mucilaginous enema, when surface is warm. At night pulv. Doveri grs. xv. Diet, essence of beef; wine whey.

22nd. 10, A. M., only ℥ij. of blood were abstracted, as patient was much exhausted; slept well during four hours; intelligence improved; but little cephalalgia; no tinnitus aurium, except when sitting up; eyes injected; tongue cleaning in centre; much thirst; soreness of throat, fauces and tonsils red and tumid; deglutition painful; no nausea; alvine evacuations natural in colour and odour; tympanitis continues; no pain on pressure of abdomen. Skin, above natural temperature; some moisture on the breast; spots are of a darker colour, and do not disappear upon pressure so readily as yesterday. Pulse 88, medium volume; respiration 20, costal. R. Carb. ammoniæ grs. v. q. h.; rubefacient application to the throat; sponging; ice; orange; lemonade; oysters and beef essence; wine whey. Opiate at night.

4, P. M., pulse 100, regular, good volume, yielding to moderate pressure: face much flushed, capillary circulation very active; skin hot; spots more numerous, are readily effaced, but instantly reappear; no increase of cephalalgia; tongue thickly coated in middle with white fur; no pain on pressure of abdomen. Cool enema and sponging were resorted to; stimulants were discontinued, and in the course of that evening skin became soft and perspirable.

24th. 1, P. M., slept well; no delirium. In the morning at 10 o'clock, skin was moist; pulse of moderate volume and quickness. Skin is now hot; face flushed; capillary circulation active; eyes injected; tendency to coma; dull expression of countenance; tongue dry, covered with brown fur; lips parched; sordes on teeth; much thirst; no nausea; petechial spots fading. Pulse 114, small, jerking; carotids vibratory, especially on the right side; respiration 28, costal. R. Ol. terebinth gts. xv. q. h. (in emulsion,) sulph. quinine grs. vi. q. b.

h. per enema: sulph. quinine grs. iij. q. h. during remission of fever; blisters on the ankles and abdomen until redness. Diet as before.

Very little alteration was presented in the symptoms during the three succeeding days. The patient was extremely prostrated; febrile exacerbation recurred in the afternoon, slight remission in the morning. The skin at times was slightly perspirable, though generally dry and hot. The petechial spots, which were pale on the 24th, reappeared in increased numbers on the 26th, covering every part of the surface. Intelligence very dull and confused. Countenance idiotic, eyes half closed, and mouth open. Sleep was tranquil, by exhibition of Dover's powders and paregoric; almost entire deafness existed. Pulse varied from 100 to 120, of small volume, easily extinguished, but without subsultus. Respiration 20 to 26, costal. Respiration expansive, except posteriorly; anteriorly mucous and sibilant ronchi existed and masked the vesicular respiration; cough slight, without expectoration; dejections dark yellow-brown colour, of moderate consistence; urine became more natural in colour.

The treatment previously mentioned was continued, tonics and stimulants being exhibited in the remission, discontinued during the exacerbation, and replaced by evaporating lotions, cool mucilaginous or saline enemata, and diaphoretics of the neutral salts.

On the 28th, whilst the weather was cold and damp, a portion of the chimney passing through the ward in which she was placed, was torn down, rendering it impossible to maintain a proper temperature. The noise which the hammering occasioned, caused agonizing cephalalgia, inducing delirium; the periodical exacerbation in afternoon was exceedingly violent, accompanied with convulsions. In the evening ($7\frac{1}{2}$ o'clock) skin was warm but moist, no pain in the head; patient rational; pulse 120, gaseous. Respiration 26, costo-abdominal. She slept soundly during two hours, after taking an opiate, (pulv. Doveri grs. xv.) Nurse reports, that towards morning she had a chill; surface of the body was cold; lips, cheeks, and extremities presenting a blue appearance, and that the reaction took place at seven o'clock.

29th, 10 A. M. Skin natural temperature and moist; body covered with petechia and vibices, which do not disappear on pressure; capillary circulation moderately active; hearing very obtuse; no cephalalgia; slight tinnitus aurium; operation of mind, languid; constant moaning; speaks slowly, articulates with difficulty. Tongue smooth, clean and tumid at the point, covered posteriorly with a brown and loose incrustation; two alvine dejections resembling light thin jelly in the last twenty-four hours; some appetite, much thirst; abdomen

distended by flatus; urine slightly turbid, but has not the deep red hue previously mentioned. Pulse 120, small volume, regular, extinguished by slight pressure; vessels of neck undulatory, especially on right side. Respiration 28, irregular. R. port wine 1 gill, quinine solution ℥i. (grs. iv.) q. h.; quinine grs. x. q. 2½ h., with essence of beef in injection. Emul. ol. terebinth. ℥ss. q. h. Diet, essence of beef. 8, P. M. Stimuli have been discontinued for last two hours in consequence of reaction. Hiccups for a short time. Nurse reports that an hour since convulsive movements took place, continued ten minutes, and was succeeded by vomiting. Alvine dejections frequent, watery; cannot retain the injections. Pulse 124, very weak, undulating, pulsations not definite. Countenance vacant, but answers when repeatedly spoken to; swallows with difficulty; respiration 40, rattling in throat; mucous rhonchus in lungs, especially the right. Surface became cold, and death took place at 11, P. M.

Autopsy 36 hours after death.

Large frame; no emaciation; a layer of fat half an inch in thickness, through which is distributed streaks of black blood covering the abdomen; spots of a purple colour, resembling purpura hæmorrhagica, cover the legs, thighs and abdomen; petechia on the arms and chest as during life; abdomen distended and resonant on percussion.

Brain.—*Falx* engorged with blood, and contains soft yellow-green coagula. The larger veins of the *dura mater* are filled with blood, and its arteries contain a small quantity of dark thin blood. *Arachnoid* and *pia mater* injected with blood of a bluish-black colour; no effusion of serum between these meninges. Pia mater is torn from the cortical substance without lacerating it.

Cerebrum.—Cortical substance pale, of usual consistence, medullary portions firm, of light violet hue; its horizontal sections dotted with black points at the cut orifices of its vessels. About ℥iss. of transparent serum in each ventricle. The cerebellum of usual consistence and colour; the arachnoid is less injected here than elsewhere.

Thorax.—Old adhesions of the right lung near the base to the ribs; no effusion of serum in either thoracic cavity. Lower lobes of both lungs condensed, almost impermeable to air, congested moderately, friable, not hepatized; but resembling, when torn, the appearance of the spleen. Posteriorly the upper lobes are engorged, tissue friable; whilst anteriorly the pulmonary tissue is firm, tears with difficulty, crepitant, and but slightly congested. *Bronchi* of a livid colour, contain a small portion of sero-mucus fluid; the lining membrane, when detached, is transparent and not thickened. *Larynx* moderately injected; no tumidity of the lining membrane. *Trachea* of a deep red

colour, its mucous membrane of usual consistence. *Heart* is of the natural size, its parietes flabby, easily broken down; valves normal; right ventricle contains a soft coagulum of slight firmness. In the left ventricle was a small quantity of black blood. No coagulum in the aorta, which contained a small quantity of dark blood, having oil-like particles distributed through it. No coagula either in the venæ cavæ ascendens or in the femoral vein; both contain a thick black blood, similar in consistence and colour to molasses, having minute fatty globules floating in it.

Abdomen.—*Stomach* distended by gas, and contains several ounces of a straw coloured fluid; patches of dark injection, in which mucous membrane is softened, are seen in those portions of the large cul-de-sac covered by the contained fluids, in all other parts the consistence and appearance of the mucous membrane are natural. Mucous membrane of duodenum stained of a dark yellow colour. The *small intestines* in the greater part of their extent are translucent, with scarcely the appearance of blood-vessels; several ecchymosed spots, however, are seen; over which, as in all its extent, the mucous membrane is healthy, yielding stripes of from six to ten lines. One of these spots, which is in the ileum, is several inches in length, and when the mucous coat is raised the ecchymosis is seen in the cellular coat. *Glands of Peyer* healthy, not developed; seen with difficulty. *Brunner's* follicles normal. The *large intestine* contains fæces of a yellowish-brown colour and of moderate consistence; the mucous membranes and follicles normal. *Liver* natural size, surface fawn coloured, mottled with purple spots of ecchymosis; structure granular, friable; blood-vessels filled with dark fluid blood, containing oily particles. *Gall bladder* contains dark grumous bile. *Spleen* twice its usual size, colour natural, softened, almost diffluent. *Kidneys* of natural size, the conoidal portions much darker than usual, but of natural consistence. *Bladder* contains no urine, coated with thick white mucus; its internal coat moderately injected. *Uterus* normal.

Remarks.—The fever in the preceding case was of a remittent type in the commencement, and evidently intermittent during the two last days of life. Death took place in the cold stage, and the depressing influence of the low temperature of the medical ward no doubt contributed to produce the fatal result. The cause of the irregularity of the pulse at the commencement, and its subsequent regularity, are not explained by the state of the heart. The ecchymosis on the liver, and the effused blood on the cellular coat of the small intestines, are strikingly analogous to the vibices on the surface of the body, and probably depend on the same cause. The presence of black blood in

the arterial system, and the friability of the lungs, are remarkable pathological features in this disease, and are very similar to the appearances presented in death from asphyxia, and would seem to prove that the blood in both diseases is unchanged in its passage through the lungs.

Case III. *Precursory symptoms five days—disease commenced with cephalalgia, muscular and erratic pains, fever remittent, petechiæ, vibices, great prostration, death on the 14th day. Autopsy. Lungs friable, patches of Peyer healthy, black blood in arterial system.*—Susan C——, aged 21, intemperate, entered the hospital March 27th. She was discharged from prison last winter, and has suffered from intense cold and privations of every description. Health generally good, with the exception of a syphilitic affection manifested a year since. She had been sick sixteen days, and although she was much prostrated, her memory was sufficiently accurate to fix the date of the occurrence of the different symptoms of the present disease. On the 16th, after experiencing lassitude, loss of appetite, and want of sleep during five days, she was seized with sharp pains in the calves of the legs, extending to the knees, thighs, and intestines. On the 19th, soreness of throat, great thirst, but no difficulty in deglutition. On the 20th, intense pain in the temples and eye-balls, with vertigo. On the 23d acute pain was felt in the lumbar region. Constipation had existed two weeks previous to the 22nd, when several copious, fœtid, dark alvine discharges took place. The soreness of the throat disappeared spontaneously in two days, but the dizziness of the head and the local pains have continued, with but slight alteration, until the present time.

Present state, March 27th. Large frame, embonpoint considerable; dark blue eyes, chestnut hair, decubitus on either side; expression of the countenance anxious; skin of natural heat and dry; capillary circulation of the face, which is of a violet hue, languid, colour disappearing upon pressure and returning slowly. Intelligence slightly obscured; tinnitus aurium, but no pain in the head; tongue dry, thick dark coating in the centre, red on the edges; teeth covered with sordes; thirst very great, desires cold drinks. No soreness of throat, deglutition easy; abdomen distended, resonant on percussion over colon and stomach; pressure causes pain in left lumbar region; bowels opened; urine scanty, of high colour, voided without pain or heat. Pulse 150 per minute, regular, of moderate volume, bounding, gaseous and extinguished on slight pressure. Carotids and vessels of the neck visibly pulsating, especially those on the right side. Heart yields

no impulse, but its sounds are distinct over the præcordial region, with bruit de soufflet over the valves.

Thorax.—Percussion anteriorly, resonant under both clavicles; obscure on the right side below the second rib. Respiration on the right, blowing, with sibilant ronchi; on the left side, in the clavicular region, strongly sibilant, occasionally sub-crepitant; over the præcordial region it is feeble, with mucous ronchus. Percussion posteriorly yields a dull sound in the entire extent of the chest, especially in the middle 3d. Respiration is extremely feeble, except at the root of the lung, where it is rude; the voice is there remarkably clear (argentine.) Respiration 30, more abdominal than costal; sputa ærated somewhat viscid; slight cough, no soreness on pressure of larynx.

The body is covered with two varieties of spots; one of a brownish-red, varying in size from a pin's head to that of a ten cent piece, do not disappear on pressure, and covered with slight scales, are the result of a syphilitic eruption; these, the patient says, had entirely disappeared previous to present illness. The other spots, which are of a lilac colour, vary from a line to a quarter of an inch in diameter; they disappear on long continued pressure, reappear slowly, are not elevated or covered by scales, and are numerous, especially on the breast. Treatment: Tr. cinchona compos. ℥j. q. b. h. Solution of quinine, grs. ij. every hour. Effervescing mixture. Blisters to the thighs until redness is produced. Sulph. morph. grs. $\frac{1}{8}$ every hour until sleep takes place. Diet, essence of beef.

28*th.* Had disturbed sleep last night, after taking $\frac{2}{3}$ of gr. of morphia; first sleep, the patient says, since the 21st. No delirium during the night; two slimy alvine dejections since yesterday, of a yellow colour, without odour. Exacerbation of fever at three o'clock this morning, subsided at eight, and was followed by some moisture of the skin, but no decided perspiration. 11 o'clock, A. M., skin warm, soft; countenance flushed, capillary circulation of cheeks active, redness reappears immediately after pressure; eyes watery, conjunctiva congested; dimness of vision, which is increased by rising in bed; hearing very dull; no pain in the head, but noise in the ears, compared by the patient to blacksmiths hammering in the head; tongue less furred, edges cleaner than yesterday, violet colour. Pulse still vibratory, but firmer, 138 per minute. Respiration 20, costo-abdominal; some cough, expectoration as yesterday. Continue treatment; dry cups to the chest, blister 4 by 6 to the back of the neck.

29*th.* Fever yesterday commenced at 12 M., continued four hours, skin was exceedingly hot, thirst intense, desiring ice; mind excited but not delirious, no perspiration was observable after subsidence.

Fever recurred at 11, P. M., but less violent than in the afternoon. Delirium throughout the night; blister drew well. This morning the skin is warm, soft, but without moisture; spots on the body and extremities are more numerous; arms and hands present a mottled appearance of white and deep rose colour, which disappears on pressure and reappears slowly. Spots are not elevated; they vary in size from a pin's head to half an inch in diameter. Hearing very obtuse; eyes congested, pupils small, contracted, insensible to light; countenance flushed, capillary circulation rapid; tongue moist, violet colour, some yellowish fur in the centre; no swelling of the tonsils; tickling in the throat, no pain in swallowing. Pulse 142, gaseous; respiration 30. Treatment:—Solution of acetate of ammonia, ℥ss. q. h.; dress blistered surface with quinine; blister calves of legs to redness. Discontinue the quinine while the skin is hot. Diet, essence of beef, with eggs and wine.

30*th*. Some fever yesterday afternoon, slight fever through the night, no sleep, constant moaning, but no marked delirium; had two alvine evacuations of a yellow colour, good consistence, no odour. This morning, at 10½, A. M., skin of nearly natural temperature, capillary circulation extremely languid. The spots which were yesterday of a lilac are now dark violet; do not disappear on pressure. Tongue is dry, coated with brown fur; deafness more marked. Intelligence languid; answers questions slowly, but correctly. Pulse 120, regular, small volume, extremely feeble. Respiration 15; carotid strongly vibratory. Treatment:—Rub the limbs with a liniment of equal parts of turpentine and tinct. of cantharides; turpentine emulsion; small portions of brandy toddy. Diet as before. Death took place at 5, P. M.

Autopsy eighteen hours after death.

No emaciation, great cadaveric rigidity; abdomen much distended, resonant on percussion. Body and extremities covered with petechiæ and vibices as in life; those of the upper extremities and legs are of a deep purple colour, especially those on the lower extremities, where they are numerous, and of half an inch in diameter.

Brain.—A small quantity of black blood is found in the vessels of the dura mater; falx filled with soft coagulum, of yellowish-green colour; no thickening or opacity of the tunica arachnoides; pia mater transparent, its vessels congested with black blood; no effusion of serum between arachnoid and pia mater. Cortical substance pale, medullary of usual consistence, of violet colour; each ventricle contains about a drachm of serum. Cerebellum normal.

Thorax.—Adeps considerable over the thorax and abdomen.

Larynx.—Lining membrane reddened, transparent, its consistence natural. Mucous membrane of the fauces tumid, of violet colour; amygdala contain numerous cicatrices filled with calcareous deposit. *Left lung* contracted, not crepitant upon pressure, extremely friable. *Right lung* congested, especially in the middle lobe, infiltrated with bloody serum, its structure not granulated, friable upon pressure, mucous membrane of the bronchi red but normal in consistence; each thoracic cavity contains about four ounces of red serum. No adhesion of lungs to pleura costalis.

Heart small, parietes of usual thickness and muscular, consistence good, valves healthy; coagula in the right ventricles thin and easily broken; a few drops of black blood in the left ventricle. Aorta contains black blood with some coagula.

Abdomen.—The omentum charged with fat. Stomach and small intestines distended by gas; the mucous coat of the stomach in its large curvature stellated with red points of blood, its consistence, however, is normal throughout, excepting in the great cul-de-sac, where it is softer than natural. Small intestines contain some green fæces; mucous coat normal, yields by traction strips from six to eight lines in length. *Peyer's glands* healthy. *Brunner's follicles* not developed. *Cæcum* and *colon* healthy. *Liver* natural size, structure normal. *Bile* thick, ropy, and of very dark colour. *Spleen* twice the natural size, six by four inches, structure much softened, (diffluent.) *Kidneys* natural in consistence and size. *Bladder* not distended, contains a small portion of light coloured mucus. *Pancreas* usual size, violet hue. *Uterus* natural.

Remarks.—The fever in this, as in the case of Walters, was remittent; the presence of black blood in the arterial system was also observed; the lungs were much more friable and more impermeable to air. The brain exhibited a state of passive congestion of some of its larger vessels; meninges unchanged in structure.

Case IV. *Precursory symptoms, anorexia, lassitude, constipation—Disease commenced with nausea, vomiting, frontal cephalalgia, sore throat—Delirium, extreme prostration, petechiæ on the gums and lips—Death on twenty-ninth day—Lungs friable, black blood in the arterial system—Patches of Peyer healthy.*—Bush, negress, washerwoman, aged 20, entered March 6th, 1836. During the last winter, she, with four negroes, occupied a small, damp, confined cellar in south Water street, near the Delaware, and suffered greatly from want of food and intense cold. Has been sick three weeks; at the commencement experienced lassitude, general debility, loss of appetite, followed on the succeeding day by nausea and vomiting. On the

morning of the third day, whilst washing, was suddenly seized by violent pain in the forehead; in the evening the throat became sore, and continued so, with difficult deglutition, three or four days, when it disappeared spontaneously. Cephalalgia with tinnitus aurium, some deafness, and much thirst had been constantly present. Patient says she has slept very little, and that constipation has been constant. Ordered stimulating enema of ol. terebinth. sulph. morph. grs. $\frac{1}{8}$, every hour until sleep takes place. Bowels were opened by the enema, and patient slept after the exhibition of $\frac{3}{8}$ gr. of morphia.

Present state.—March 7th. Decubitus dorsal; skin warm and dry; dark spots, not elevated, from two to four lines in diameter, cover the breast and abdomen; expression of the countenance anxious; intelligence confused, answers slowly but correctly, when her attention has been strongly directed to the question; constant moaning; conjunctiva injected; pupil contracted to a point and uninfluenced by light; pain in eye balls; feeling of soreness rather than of pain in frontal region; no tinnitus aurium; deafness in the left ear; tongue moist, covered with light fur, edges red, papillæ much enlarged; gums of a rose red colour, mottled with dark purple spots which do not disappear upon pressure; teeth covered with sordes; great thirst; some soreness of the throat; amygdala not enlarged; deglutition not easy; anorexia; abdomen hard, slightly tumid, resonant on percussion over the cœcum; some epigastric tenderness; liver (tested by percussion) not enlarged. Pulse 150, weak, jerking, thread-like, extinguished by the slightest pressure, constant spasmodic twitching of fingers, and subsultus of tendons of the arms. Respiration costal, short, contracted, irregular, 66 per minute, (counted after interrogating the patient.) Percussion of the chest, anteriorly; under both clavicles, normal; slightly obscure in the lower two-thirds of the right side, where the respiration is vesicular, but extremely feeble; on the left, respiration is expansive, with sonorous ronchus. On the back, percussion yields a dull sound, especially on the left side. Respiration very feeble, with occasional sibilant ronchi on the left. Voice transmitted near the root of the lung remarkably clear, not resonant (argentine.) Soreness on pressure of left breast prevented percussion of præcordial region. The heart gives no impulse; second sound predominates; bruit-de-soufflet over the valves.

Treatment.—Dry cups to the anterior parietes of the chest; blister 4 × 6 between the shoulders; evaporating lotions to the head. Pulv. camph. grs. v. ol. terebinth. gtts. xv., in emulsion, every hour. Diet, essence of beef and wine whey. Sulph. of morphia, to be given at night, and quinine grs. ij. every hour, should the skin become cool.

8*th.* Took grs. xx. of quinine, yesterday. Camphor and opium suspended in the afternoon. Blister to the back partly vesicated. Disturbed sleep, with delirium, hiccup and jactitation through the night. This morning (10 o'clock) expression of countenance wild and anxious; moaning, but no marked delirium. Hearing very obtuse; constant movement of head from side to side; cannot protrude the tongue beyond the teeth; tongue moist, rose coloured at the point, coated posteriorly, dark incrustation, papillæ enlarged; skin dry, temperature natural; pulse 144, less jerking, subsultus diminished; respiration 30, costal, no dilatation of nostrils upon inspiration; urine scanty, high red colour, resembling blood. Last evening had one alvine evacuation of natural colour and consistence. ℞. Sulph. quinine grs. ij. every hour. Camphor julap and turpentine every third hour. Enema of essence of beef; wine. Diet, essence of beef; morphia at night. In the afternoon vomiting frequently took place, but was checked by exhibition of kreosote ♏ $\frac{1}{8}$ q. h.

9*th.* Slept well last night after ten o'clock, without either delirium or moaning. (Took $\frac{3}{8}$ gr. sulph. morph.) 9½ o'clock, A. M., decubitus dorsal with legs drawn up on the thighs; abandoned; deafness increased; constant moving of head from side to side; twitching of lips; eyes much congested, half closed, balls constantly rolling in the orbit; speechless, cannot articulate; tongue cannot be seen, as the teeth are firmly closed and covered with sordes; lips are dry, covered with dark fur externally, internal membrane mottled. Pulse 132, thread-like, regular, extinguished by slight pressure. Respiration 36, more costal than abdominal; on the right side, anteriorly, rude; pure on the left. Posteriorly rude in the interscapular space. Subsultus diminished. Both arms swollen, slightest movement causing pain. ℞. Dress blister between the shoulders with quinine. Enema of essence of beef, with camphor, grs. x. Other treatment continued. Patient became gradually weaker, and was insensible to external impressions at 8 o'clock, P. M. Convulsions took place, and, at 10 o'clock, death.

Autopsy, thirty-six hours after death.—No emaciation; no infiltration of serum. Body covered with vibices varying in size from two lines to half an inch in diameter, particularly on the abdomen and thighs. Percussion of thorax same as during life.

Brain.—The vessels of dura mater contain globules of black blood, separated by air, the falx contains dark dissolved blood, with some soft yellow green coagula. A large portion of bone was found in the anterior portion of the brain between the dura and pia mater. The large vessels of the pia mater are congested with black blood, the

smaller are empty: no effusion of serum between the pia mater and arachnoid. Arachnoid transparent, the membranes do not adhere to the cortical substance, which is of a pale ash colour, and of natural consistence. The medullary substance of usual consistence, and of a very slight violet tinge; its horizontal sections present numerous black points at the orifice of the vessels; ventricles each contain a drachm of limpid serum; corpora striata and thalami. normal, *cerebellum* and central portions of the brain also normal; tunica arachnoidea somewhat opaque at the base of the brain.

Thorax.—No adhesion of lungs to the ribs; on each side the pleura contains a small portion (one ounce) of bloody fluid (resembling blood.) *The right side.* Lung compressed, permeable in the upper lobe, impermeable in the lower lobes, excepting the middle anterior portions; lower lobe is friable, not hepatized, contains some bloody serum; the bronchial tubes are of a red colour, their lining membrane transparent and of good consistence; the *left lung* is condensed in its inferior portions, which are impermeable to air, friable, but not hepatized; upper lobe natural anteriorly; posteriorly, impermeable, congested and friable. On the surface of the lungs beneath the pleura are seen eight or ten ecchymosed spots of blood.

Heart enlarged, twice its usual size; no adhesions between the heart and pericardium, which contains one ounce of effused blood; the muscular parietes of the heart are of the usual thickness but softened; the valves natural; soft coagula in both cavities, those in the left ventricle surrounded by black blood; black blood, with coagula, is found in the aorta; the blood in the vena cava ascendens is thick, black, and oleaginous.

Abdomen.—Stomach and intestines distended by gas; mucous coat of the stomach presents a dark slate colour, with the exception of a space an inch square in the cardiac (cul-de-sac) extremity, in which the mucous coat is somewhat softened; this membrane is mammillonated and thickened near the pyloric orifice, and yields strips of eighteen lines in length. *Small intestines* natural throughout the whole extent except the middle portion, where are presented numerous purple spots from the blood effused into the cellular coat at the capillary extremities of the blood-vessels; mucous coat throughout natural. *Glands of Peyer* and *Brunner* healthy. *Spleen* natural size and normal. *Liver* not enlarged, fawn coloured externally, softened.

The last three cases were noted by Dr. Pennock with extreme care, and are given as illustrations of the pathological terms, as well as of the symptoms in the fatal cases. As the subject is one of importance,

I shall give two more cases, in which the symptoms are related in a condensed manner.

Case V. *Death in the fourth week—Great stupor, abundant eruption of petechiæ—Dark blood in the brain and lungs, and ecchymosis of the intestines—Glands of Peyer natural—Softening of the great tuberosity of the stomach and enlargement of the spleen.*—Jacob, a German, aged 38, is a chemist by trade, has been in America four years, and has lived in Philadelphia during the whole time. There was no other person ill in the house with him; remembers scarcely any thing of his disease, except that he had chills and vomiting, and has been ill nearly three weeks.

On the 8th of April, the day after his entrance, I found him in the following state: He is very stout and muscular; lies on his back in a state of constant stupor; eyes injected, pupils small, not contracted; face dull, livid; intelligence very obtuse, answers slow and hesitating; memory impaired; slight cephalalgia; sight confused; tinnitus constant; hearing dull. Sleep sound during a part of the night; subsultus in the tendons of the wrists and legs. The surface of the whole body is covered with an eruption resembling measles in colour, not irregular and not elevated; on pressure it does not disappear entirely. Sweating since six or seven this morning; hot, harsh and dry skin previously; tongue dry and harsh; abdomen tender, containing little gas; one stool of a dark yellow colour after the injection; appetite not much impaired; thirst great. Pulse 140, feeble; a slight pressure completely arrests it. Respiration a little stertorous; sonorous and mucous ronchus abundant throughout the chest, but percussion sonorous.

Blister 7 by 5 inches between shoulders, for five hours; weak sinapism to legs and wrists. Milk punch. Huxham's tincture of bark ℥ss. q. secunda h. in a cup of water. Camphor gr. v. q. sex. h. Essence of two pounds of beef.

In the evening of the 7th he took five grains of camphor every two hours, the effervescing draught, and a camphor enema, with both.

8th, at 3, P. M. The blister had vesicated the neck. The patient was more intelligent.

9th. He had slept but little. Petechiæ paler; teeth fuliginous; some twitching of the face and subsultus; cephalalgia, no delirium; intelligence clearer, but the senses are in the same state as yesterday. Pulse fuller and stronger, 140; no chills, some sweating during the night; no vomiting or dejection; thirst great, appetite apparently good.

Brandy ℥viij. in milk; wine ℥viij. in gruel; tincture of bark less frequently given; camphor as before; essence of beef. Sponging

with vinegar and water. In the evening the coma increased; face livid and swollen. Sinapisms, &c. Death the 10th, at 7, A. M.

Autopsy on the 11th—twenty-seven hours after death:

Exterior.—Very corpulent subject. Petechiæ livid, but much paler and fewer in number than before death. Skin of the posterior parts of the body of a dull livid colour. Rigidity of limbs.

Head.—A large quantity of black blood on the external surface of the dura mater. Curdled dark blood in all the sinus of the brain. Large veins full of blood; smaller vessels rather more than usually injected; arachnoid moist. Ventricles contain about two drachms of serum; substance of brain of good consistence, but more moist than usual. The medullary portion is of a marbled violet colour, with thin dark blood oozing from the cut surface. Cerebellum and pons varolii firm, not injected, but of a bluish tint.

Neck.—Pharynx of a slight violet hue. Larynx less livid than the pharynx.

Thorax.—Pericardium contains several ounces of bloody serum. The heart is large, pale, and very flaccid, a slight pressure being sufficient to tear it. The internal surface is of a dark red colour, which extends to the valves, and is deepest at the most depending part, but there is no trace of false membrane or thickening. The aorta, carotid, and iliac arteries contain a dark fluid blood, and their internal coat is of a dark red colour.

There is a little reddish serum in the pleuræ; the lungs are of a livid red colour in their lower lobes, which are engorged with liquid blood, but are not friable. Bronchi not thickened, but tinged of the same colour as the subjacent pulmonary tissue.

Abdomen.—Peritoneum pale; stomach distended, containing in its cardiac third a whitish mucus; at this part all the coats are so soft that the finger passes through them on slight pressure, they have a pearly aspect, and the mucous coat in some spots is entirely removed. In the rest of its extent this coat is of a dull slate colour, mammillated, thickened, and very firm. The capillary vessels are very slightly injected. The small intestine is not distended, and contains a greenish-yellow mucus. The mucous coat is throughout pale, except in the fourth nearest the valve, which offers a general dark red tint, (ecchymosis.) The glands of Peyer are of the same colour as the rest of the intestine, not more prominent than usual, and of perfectly normal aspect. Isolated follicles not visible. Large intestine contains a little fæces. The mucous coat is not injected, and is of natural thickness and consistence. Liver firm, of the average size, presenting nothing remarkable. Bile, viscid. Spleen softened, more

than six inches long, of a very dark colour. Kidneys of the usual appearance. Mesenteric glands small and firm. The coats of the stomach contained much acid, tinging litmus paper red immediately.

Remarks.—This patient entered in the most advanced period of the disease, and with very malignant symptoms. The fœtor arising from the skin and breath was very intense, and one of the assistants contracted the disease directly from him, while supporting him in bed. After death the lesions were a very dissolved dark blood, permeating the tissues like a sponge, and, from the livid aspect of the face, the same condition of the blood probably existed during life. The decomposition of the body seemed to have begun already—the autopsy was made twenty-seven hours after death, in a cool season of the year. Another lesion intimately connected with the state of the fluids was the softening of the great tuberosity of the stomach and the acid developed in its coats. The glands of the intestines and mesentery were as usual found perfectly healthy, but the spleen was enlarged and softened. The lesion, then, was chiefly a very liquid state of the blood, which was darker than usual, and infiltrated the most depending tissues. The stimulating treatment was adopted, and seemed to promise some success, but the patient afterwards sank into a greater degree of prostration.

Case VI. *Fever began after a debauch, and lasted eighteen days—Great prostration, stupor, &c.—Pneumonia of the right lung and softening of the cardiac portion of the stomach.*—Henry Holmes, black, aged 22, employed in unloading vessels, lived with four others, in a small cellar. On the 12th of May drank very freely. Taken ill on the 13th, with the following symptoms: pain in back, pelvis and limbs, chilliness lasting a short time, and returning frequently; very dry skin; no sweating; slight delirium; sight confused; hearing good; tinnitus aurium; no nausea nor vomiting; bowels constipated; urine red, not altered in quantity.

Admitted 20th May. His tongue furred; cephalalgia great; no injection of eyes; sight confused; hearing good; a little tinnitus; pain in back and limbs; no chilliness; skin hot and pungent; bowels open. Pulse 100, feeble. Intelligence good. R. Mixt. efferves., cups to back of neck; neut. mixt. with 1 gr. antim. tart. Sponging with vinegar; gruel; lemonade.

May 21st. Intellect much more obtuse; decubitus more abandoned; no cephalalgia; answers confused; giddiness slight; sight and hearing good; no tinnitus aurium; tremor great; eyes more suffused; tongue moist at edges, furred at centre; bad taste in mouth; thirst great; no appetite; has once vomited; two or three stools, daily. No

cutaneous sensibility; no pain in back or limbs; skin hot, pungent and dry. Pulse 108, regular, undulating, but firm. Spirit. mindereri. ℥vss., spt. nitri, dulc. ℥ss. S. ℥ss. q. sec. hora. Sponging; cold applications to the head; flaxseed enemata; gruel; thin broth. On the evening of the 20th, dry cups were applied to the back of the neck with some diminution of the cerebral symptoms.

On the 23d there was much more dulness of intellect, and insomnia: a blister was ordered to the back of the neck. In the night of the 23d to the 24th, there was frequent muttering delirium; skin clammy and cool. On the 25th, the prostration was extreme; heat of skin pungent. Delirium throughout the day; a blister was applied over the whole scalp, and, on the preceding evening, five grains of the carbonate of ammonia and ten drops of the spirits of turpentine were given every hour, and continued on the 25th.

On the 26th, the intelligence was clearer, the thirst greater; can take food with pleasure. Pulse 128, feeble. The teeth and tongue were more coated, and the prostration greater.

On the 27th, Huxham's tincture of bark, carbonate of ammonia and camphor, as injection. Blister to thighs.

28th. Eyes less injected; articulation still difficult; feels better; stupor continues, but he hears and answers questions. Skin less burning; extremities cool; great thirst; tongue brownish, mouth dry; constipation. Pulse 120, rather feeble. Continue treatment; wine, sixteen ounces; broth; gruel; poultice, with chloride of soda, to abdomen.

29th. Less stupor; pulse 120, less feeble. Respiration quick; much increase of cough; some subsultus; tongue less fuliginous; skin of natural temperature; one dejection. Continue treatment.

30th. Much more intelligent, but extreme prostration. No cephalalgia; no subsultus; sight nearly natural; tongue less brown and less dry; skin quite cool at extremities, and on the rest of the surface of less temperature than natural; very little delirium; sleep pretty good; thirst; some appetite; one stool. Pulse 120, less feeble. No subsultus; no cough. Continue wine, carbonate of ammonia, &c.

Death occurred on the morning of the 31st.

Autopsy, thirty-six hours after death.—Exterior. General rigidity, no emaciation, nor infiltration.

Head.—Sinus of the dura mater containing a small quantity of dark blood; arachnoid moist; almost two ounces of serum at the base of the brain. Pia mater easily detached; the large veins are distended with dark blood, but there is no injection of the smaller vessels. Cortical substance of a violet colour, which also extends to the medul-

lary portion, from which drops of dark blood exude in abundance. Consistence good throughout. Ventricles containing two drachms each of limpid serum—cerebellum and medullary protuberance firm, rather livid.

Neck.—Larynx and pharynx not injected, firm.

Thorax.—Left pleura contains no serum; has an unctuous feel to the touch. The left lung is soft, grayish, permeable to the air, the bronchi pale and natural. The right pleura is free from adhesions, and contains no serum. The upper and middle lobes of the right lung are soft and grayish, but the lower lobe and the lower margin of the upper, is heavy, impervious to the air, of a dark red colour, slightly granulated. The bronchi are reddish, and contain thick reddish mucus. Pericardium of the same unctuous feel as the pleura. Heart of the usual red colour; the valves natural, except a slight cartilaginous deposit in the mitral; tissue firm, large, flaccid; coagulum in the right cavities surrounded by much serum, a little fluid blood in the left; aorta pale and empty.

Stomach, rather distended by a grayish liquid. Cardiac half of the mucous coat is of a dirty-white colour, traversed by large blue veins, of the natural thickness, but much softened. In the rest of its extent this coat is of a slate colour, a little mammillated, but firm and not thickened. Small intestine contains the usual greenish mucous, its inner coat is throughout pale and of good consistence. Glands of Peyer distinctly visible, but slightly elevated, perfectly normal. Isolated follicles not visible. Mesenteric glands small and firm. Large intestine contains some liquid fæces, mucous coat pale and firm. Liver darker than usual, and rather less firm. Bile abundant and healthy. Spleen four inches in length, firm. Kidneys normal. Bladder contracted.

In this case there existed a considerable degree of inflammation of the right lung, which probably had an important agency in accelerating the patient's death. The stomach also presented the general slate colour so frequently seen in cases of chronic inflammation of its mucous coat, and the cardiac portion was softened, although the body was examined within thirty hours after death. The termination of the case was unexpected. The patient had decidedly improved and the disease would probably have terminated happily, if the inflammation of the lungs had not intervened, and rapidly increased just before death. On account of the extreme exhaustion of the patient the chest was not thoroughly examined in the last two days of his life, it had previously offered the usual signs of bronchitis, sonorous, sibilant and mucous rhonchi.

I have prepared for publication a case of dothinenteritis, and one of malignant remittent, or as it is called in the southern states, congestive fever. These cases occurred during the past summer when the epidemic of typhus still continued. The appearances observed on dissection did not differ from those already described in this Journal, in the report of cases which I published in the year 1834. In the dothinenteritis there were inflammation, and ulceration of the glands of Peyer, with a diseased condition of the mesenteric glands, and of the spleen. In the case of remittent fever the lesions were limited to softening and enlargement of the spleen and liver, and inflammation of the mucous coat of the stomach.

As their publication would extend the length of this memoir beyond the limits of a Journal, I refer the reader to the cases reported in 1834. The fevers differed in their symptoms, as well as in their anatomical lesions. The symptoms of these different affections will be compared in the concluding part of this memoir, at present, and I shall consider the anatomical lesions only, which were as different in each form of fever as the pustules of small pox are unlike the eruption of measles. The anatomical characters of these varieties of fevers are peculiar to themselves, and it is as impossible to substitute the lesion of the follicles of the small intestine observed in the typhoid fever for the pathological phenomena of typhus, as it is by treatment or other means to transform the eruption of measles into the pustules of small pox.

We shall hereafter inquire if the symptoms are equally distinct and characteristic in these fevers, which, from an abuse of names, are so often confounded with each other.

Art. II. *Report of two cases of Laryngitis, treated in the New York Hospital; with remarks.* By Benjamin W. M'Cready, M. D.

Case I. John Owens, a muscular and well-proportioned seaman, was received into the New York Hospital on Monday, the 28th of September, at about 11 o'clock in the morning. According to the account which he gave of himself, he had been taken on the preceding evening with a sensation of burning in the posterior part of the fauces. In a short time difficulty of breathing supervened, and before morning his respiration had become exceedingly laborious, and he was unable to swallow. The difficulty of breathing was aggravated in parox-

ysms in which the patient suffered from a sense of imminent suffocation. Owen had been on shore but a few days, during which time he had drunk very freely.

When I saw him, the respiration was laborious and attended with a hoarse murmur, the voice was hoarse and whispering, and pressure upon the horns of the os hyoides and upon the thyroid cartilage produced pain. The pulse was 120, soft, and rather feeble; the tongue was covered with a brownish mucous layer; the skin was dry and the bowels were constipated, he not having had a stool for several days. Two dozen leeches were ordered to the throat, to be followed by a warm poultice; and an emetic of ipecacuanha, in combination with ten grains of calomel, was immediately administered. Much nausea and imperfect vomiting were produced; but the patient was not materially relieved. At four o'clock, P. M., thirty ounces of blood were drawn from the arm in a full stream, producing a sensation of faintness, though not actual deliquium, and a table-spoonful of the following solution was ordered to be taken every half hour:— Tart. antimon. et potas. grs. viij., aquæ fluvial. ℥viij. At 6 o'clock, P. M., the patient was seen by Dr. F. U. Johnston, whose month of attendance it then was. Hop poultices were ordered to be applied to the neck, as warm as could be borne. Warm pediluvia were directed, and the following powder was substituted for the solution of antimony. Prot. chlor. hydrarg. grs. xxxvj., pulv. ipecac. grs. xlviij. M. Divide into twelve powders, of which one is to be taken every hour.

29*th*, A. M. The breathing has been easier during the night, though with paroxysms of difficult respiration. The respiration is attended with the same hoarse murmur as before, and the voice remains feeble and whispering. The patient swallows with great difficulty, and refers all his pain to the region of the larynx. During the night an expectoration of tough viscid mucus has supervened. The pulse is 100, and feeble, the skin moist and warm. Ten of the powders have been taken during the night; they have operated very freely upon the bowels, and the mouth is slightly affected.

One dozen leeches were directed to be applied to the throat, to be followed by warm cataplasms. The pediluvia were repeated, and half a grain of the tartrate of antimony, to be taken in solution every half hour, was substituted for the powders.

At 11 o'clock, on visiting the patient with Dr. J., the difficulty of breathing was found to be much increased, and the pulse was 130, and very weak. The increased frequency of the pulse was probably occasioned by a paroxysm of difficult respiration, almost amounting to

suffocation, through which the patient had just passed, and which had likewise caused a copious perspiration. A blister was ordered to the back of the neck, and the employment of the powders of calomel and ipecacuanha was resumed.

About 12 o'clock, on visiting Owen, I found him in a terrible exacerbation of the disease, suffering under a sense of impending suffocation. The chest heaving, the countenance expressive of the most intense anguish, and the patient, in his agony, tossing himself about, unable to remain a moment in the same position. Dr. Alexander H. Stevens, the attending surgeon, being in the house, was immediately called; he, however, had scarcely reached the ward, when Owen threw himself back upon the bed, and, from his attitude, the cessation of his struggles, and the fixedness of his eye, we concluded he had expired. Dr. S. immediately proceeded to make an opening in the upper part of the trachea, by means of a common pocket scalpel. The entrance of the knife into the air tube was immediately followed by a long inspiration. He then concluded the operation by cutting away a small slip from the first two rings, which was rendered difficult by the alternate elevation and depression of the trachea, in consequence of the laborious respiration. A vein was opened in the arm, and about twelve ounces of very dark coloured blood were abstracted. The blood at first flowed with some difficulty, but afterwards came more freely. The respiration soon became deep and regular, though attended with a hoarse murmur, and frequently with a mucous rattle. Large strings of tough tenacious mucus were several times drawn from the opening, being seized by a forceps, when protruded in respiration. The pulse, when first felt, could scarcely be discovered, and was quite slow, it afterwards became frequent, rising to 130, and increasing somewhat in force, though still remaining soft and feeble. The pupils were very much dilated and fixed. The difficulty of breathing was increased in paroxysms, and during these paroxysms, though respiration was carried on entirely by means of the artificial opening, the nostrils would dilate and expand in the same manner as if the patient breathed through the natural passage. He would likewise throw himself about, requiring to be held down by force. Gradually the breathing became more oppressed, the extremities cold, and at two o'clock, two hours after the opening had been made, the man died.

Examination of body twenty-two hours after death. On moving the body a quantity of frothy mucus issued from the opening in the trachea. The larynx and parts connected with it being removed together, the tongue was found to be tumid, and of a dark purple

colour. The epiglottis was much swollen and red; the sacculæ of the larynx likewise exhibited traces of high inflammation, being of a bright red hue. Both the sacculæ and the epiglottis were covered with a muco-purulent secretion, and in several places there were deposites of coagulable lymph of two or three lines in thickness adhering firmly to the subjacent parts. The tumefaction of the rima-glottidis was so considerable that its opening was almost closed. Its lining membrane was red, and covered with the same muco-purulent secretion which was spread over the sacculæ and epiglottis, and there were several patches of lymph adhering to its surface. The lining membrane of the trachea exhibited a blush of inflammation as far down as it was examined, and the inflammation appeared to have involved the pharynx, the mucous membrane of which was finely injected. Owing to the objections of the friends of the deceased, the head and chest were not opened.

Owen was not bled immediately on his entering the hospital, because the hour for the visit of the attending physician was at hand, and the patient, as is too common with men of his class, having been drinking freely from the time he left the vessel until the evening previous to his entering the hospital, I did not wish to assume the responsibility of so energetic a measure. Dr. J. having been detained beyond the ordinary hour, I proceeded to bleed the patient freely. Whether the lapse of the short time which intervened between his admission into the hospital and the bleeding, interfered materially with the success of that measure, it is impossible to tell; but at present I should be inclined to pursue a different course. The disease is so rapid in its progress, and so fatal in its result, that we are justified in adopting the most energetic measures under circumstances which, in ordinary cases, would lead us to hesitate in, or would forbid their employment. Tracheotomy was performed with scarcely any hope of success. Fatal congestions had already taken place in the head and chest, and from the time of its performance, though he still breathed, Owen showed no sign of sensation or intelligence. From the circumstance of the disease being exacerbated in paroxysms, during one of which the patient drops off, and believing these exacerbations to depend upon the sensibility of the mucous membrane of the larynx intensely exalted by inflammation, I have thought that opium might be of service in the treatment of laryngitis; but as the exacerbations continued after the operation, when the patient was quite insensible, it probably would be of no avail. The following case is given as showing what extensive disease may exist in the larynx without giving rise to any prominent symptom.

Case I. —— Jackson, an Englishman, about thirty-five years of age, entered the New York hospital in March, 1835, labouring under syphilitic rheumatism. The patient was well made, but thin, and of a sallow, unhealthy complexion. His voice was rather hoarse, and he complained occasionally of difficulty in swallowing fluids. He had nodes upon the clavicle and several other of the superficial bones, attended with nocturnal pains so severe as to prevent his sleeping. He stated that he had had syphilis several years previously, for which mercury had been freely employed; that some time after pains in the long bones and general ill health supervened, for which he had been subjected to a variety of treatment; his constitution, naturally a strong one, gradually became undermined, and finally he applied at the hospital for relief. The patient was put on the use of the compound decoction with the syrup of sarsaparilla, the nodes were blistered and the blisters kept open; the warm bath was had recourse to, occasional opiates were administered, and the bowels, which were costive, were regulated by mild laxitives. The patient not being materially benefitted by the treatment, recourse was had to the Pilulæ Plummeri in alterative doses. Under the use of the mercury his mouth became slightly affected, and in this condition he was exposed to a draft of air from a window left open by an imprudent nurse, of a cool damp morning, for the purpose of ventilating the ward. Soon after he was seized with extreme difficulty of respiration. His countenance was pale, his pulse very frequent, and feeble, his voice was reduced to a hoarse whisper, he had great difficulty in swallowing, and complained of pain on pressure in the laryngeal region. The feeble condition of the patient prohibited any very active treatment. Antimony and calomel were administered, and blisters and revulsives resorted to externally, but the inflammation went on unchecked, and in about 108 hours carried off the patient.

Examination of the body twenty-four hours after death.—Upon exposing the larynx, patches of inflammation were here and there evident upon its surface, but the appearance which chiefly attracted attention, was the narrowing, and indeed almost total closure of the rima glottidis, from an effusion of serum into the cellular tissue, by which it is surrounded.* The cricoid cartilage was completely ossified, as was likewise the thyroid to a considerable extent, requiring a saw for the separation of its two halves, anteriorly, upon the median line. At its posterior part, the cricoid cartilage was com-

[*This is a good example of the lesion constituting œdematous laryngitis, a disease sudden in its developement, and, unless arrested, rapid in its progress to a fatal termination.—Ed.]

pletely denuded by an ulcer, which, from its appearance, must have been of long standing. The ulcer was about the size of a shilling, greater in its vertical than in its lateral diameter, and terminated by rounded and well-defined edges, its posterior part being formed by the denuded bone into which the cricoid cartilage was converted. Traces of inflammation extended down the trachea, and were very evident in the larger bronchial tubes; the substance of the lungs was healthy, except that the minuter bronchial ramifications were filled with serum, which oozed out copiously when they were cut into.

In this case serious organic disease of the larynx had for a long time existed without attracting attention. The general ill health was sufficiently accounted for by the presence of the other symptoms. There was slight hoarseness, but not to an extent that would attract observation. The patient's voice was distinct and sonorous, nor was the alteration greater than is frequently met with in those who are accustomed to long and loud speaking, or in those who have been subject to frequent colds. The difficulty of swallowing was trifling in degree, and was only mentioned casually by the patient, nor did he ever complain of any pain or soreness in the laryngeal region. A cough, though not a very troublesome one, certainly existed without any lesion of the lungs appreciable by the stethoscope by which it could be accounted for. The patient was frequently requested to preserve his expectoration, but attaching no importance to the cough, he invariably neglected to do so. It must undoubtedly have been purulent in its character, and this, together with the alteration of the voice and the difficulty in swallowing, would have led to the detection of the disease. An attentive manual examination might have discovered some unusual tenderness in the region of the larynx, and the application of the stethoscope would probably have rendered apparent some alteration of the sound caused by the passing of the air through the larynx. Whether the detection of the disease would have been of any benefit to the patient, is a different matter. The ulcer was venereal and the patient was under the influence of mercury when the acute attack supervened, under which he expired; but, at all events, it would have been gratifying to the physician, nor would he have had the mortification to discover in his examination of the body, a serious complaint, which had never entered into his calculation when directing the treatment of the disease.

New York, September, 1836.

ART. III. *Account of six cases of Aneurism, cured by operation.* By M. MORRISSON, M. D., Member of the Medical and Chirurgical Society of Maryland, and Licentiate of Medicine and Surgery of the Medical Tribunal of Buenos Ayres.

CASE I. *Femoral Aneurism.*—August 10th, 1832. Don Luis Sagari, ætat twenty-four, a native of Buenos Ayres, presented himself in my office to obtain my opinion respecting an aneurismal tumour, situated on the femoral artery of the right side. This man, who had been an assistant apothecary in the general hospital of Buenos Ayres, had acquired knowledge sufficient to know the danger of his situation.

The tumour was large and diffusive, and situated on that part of the artery, which is in general the point of election made by surgeons for applying the ligature for the cure of popliteal aneurism. The tumour pulsated and became very painful when prest upon. There was a difference of opinion among the surgeons who had already seen the patient, as to the propriety of tying the femoral artery above or below the *arteria profunda.* This man had been confined to bed, and been subjected to the plan of Valsalva, and local pressure had been made on the tumour with a bandage and compress, without any permanent benefit. When I first saw him he was very much reduced in flesh, and in low spirits. From the appearance of Sagari, I supposed him to be of a bad habit* of body. The inguinal glands of the affected side were very large, a circumstance which made me immediately abandon the idea of tying the artery above the *arteria profunda.*

On the 20th of September, 1832, I operated in presence of Doctor J. M'Donnell, member of the Royal College of Physicians, and Don Mariano Bico, Surgeon General of the Peruvian army, and several medical students.

21st. The patient passed a restless night; pain extending from the wound along the course of the great vessels of the right side of the pelvis, and darting occasionally into the region of the loins; skin hot, pulse 120, and hard, he was bled to 14 ounces; temperature of the limb natural.

22nd. The wound free of pain, pulse 108. Saline purge prescribed.

23d. Medicine operated kindly; slept well, pulse 98.

24th. I had the pleasure to find my patient free of fever, his wound was dressed and looked well. From this date he went on improving,

*Upon inquiry I discovered that several of his relatives had died of consumption, and in the winter of 1835, I attended a brother of his who died of *tuberculous phthisis.*

and on the twenty-second day from the operation the ligature came away with the dressings.

In the month of March, 1836, I heard from Sagari, he was then in good health, and living at an *Estancia* eighty leagues to the south of Buenos Ayres.

Case II. *Aneurism of the Root of the right Carotid and Arteria innominata.*—On the 4th of November, 1832, I was requested to visit Don José Hurruz, ætat forty-two, a native of Biscay, in Spain, a man of fine proportions, and industrious habits. I found him in bed, to which he had been more or less confined during the preceding nine months, labouring under the following symptoms: pain in the cardiac region; difficulty of breathing, which was increased to a painful degree by walking a distance of a few squares; rheumatism of the right shoulder, and of the muscles of the neck of the same side; hemicrania of the right side: in addition to all these, my patient had a large pulsating tumour extending itself upwards from within the cavity of the thorax, and obliquely outwards behind the sternal extremity of the *sterno cleido mastoid* muscle.

The tumour, when pressure was made on the carotid above it, did not diminish perceptibly, but the pulse at the right wrist became fuller and stronger. When pressure was made on the right subclavian, the tumour pulsated more strongly, as likewise did the temporal and fascial arteries of the right side; by reason of these phenomena and the relations of the tumour, I concluded that it was an aneurism of the root of the right carotid and *arteria innominata.*

I stated to this poor fellow the danger of an aneurism in this region; assuring him at the same time that diseases of a similar nature had been cured in Europe and in North America, by surgical means. I gave him a faithful detail of the advantages and disadvantages of the operation, the possibility of death occurring as a consequence of it, and the prospect of cure in case it should not prove fatal. His reply was, that he would submit to any means by which a cure might be obtained. To mitigate his sufferings I bled him, and prescribed a dose of epsom salts.

On the following Monday, in consultation, it was agreed that he had an aneurism of the *arteria innominata* and root of the right carotid.

On Thursday the 8th, I operated in presence of Doctor J. M'Donnell and Don Mariano Bico, Surgeon General. The operation was commenced by making an incision, extending from a point on a line with the top of the larynx downwards along the internal margin of the *sterno-cleido mastoid* muscle, as far as possible without endangering

the superior margin of the tumour. The dissection being continued, the *homo-hyoideus* was exposed, and the sheath which involves the primitive carotid and jugular vein, laid bare. The patient now became pulseless, and to revive the powers of life a draught of undiluted wine was administered. Upon the recovery of the patient from this state, the sheath of the great vessels was raised with a dissecting forceps, and divided with a scalpel. An aneurismal needle, armed with a flat silk ligature, was passed under the artery, and the vessel secured by the ligature. The wound was brought together by the interrupted suture, dressed with adhesive straps, carefully bandaged, and the patient put to bed.

In the afternoon the patient complained of being much distressed by hollow sounds in the right side of his head; the pulsation in the tumour was tremendous, and by reason of communicating its motion to the shirt collar, the number of pulsations could be taken at some distance from the bed: the artery at the wrist being full and hard, and his skin hot and dry, I bled him to 16 ounces.

Friday 9th, the patient has passed a good night; pulse strong and frequent; tongue loaded with a white fur. I prescribed the saline mixture. At six P. M., medicine had a good effect; patient had some sleep in the course of the day; pulse strong and beating 110 in the minute; v. s. ℥x.

Saturday 10th, passed a restless night, suffers from pain in the right side of the head; pulse 100 and soft. The saline cathartic to be repeated.

11th. The tumour pulsates strongly; some tenderness in the region of the wound; pulse 100; skin moist.

12th. Dressed the wound, the greater part of which had healed by the first intention; pulse 98 and soft.

13th. Pulse 94; wound doing well.

14th. Pulse has risen to 108. V. s. ℥viij., which produced fainting.

15th. Pulse 100 and strong; twelve leeches applied to the region of the heart.

16th. Digitalis and nitre were prescribed, but in consequence of the constitutional disturbance produced by their exhibition, they were discontinued.

17th. The tumour was tender to the touch; from this date the pulsation in the tumour became weaker, the tumour itself began to harden and to diminish in size; the only symptom that afterwards required treatment was the rheumatic pain of the back of the neck and shoulder.

About the beginning of December the patient sat up to his meals; and on the ninth of the same month, being the thirty-second day from the operation, the ligature came away.

Hurruz, after his convalescence, went to one of the islands up the river, where he laboured hard at the making of charcoal. He came to this city from time to time, and when here invariably visited me, and I was happy to see him doing well. On his last visit, however, which was about the latter end of June, 1834, he complained of an oppression in the chest, which was accompanied with a slight cough, for the alleviation of which I had him cupped, and prescribed a mild emetic. This was the last time I saw Hurruz alive. On the 4th of July following, after walking a distance of twenty squares, upon his arriving at the very same house in which I operated upon him, one year and eight months before, he dropped down dead.

On the following day I examined the organs in his chest, in presence of Doctor M'Donnell.

Autopsy.—The sternum, together with the cartilages of the ribs being raised, the right subclavian artery was traced to its source, at which point it was partially dilated. The *arteria innominata* was double its ordinary size, and studded with spiculæ of ossific matter.

The right carotid, from its origin to the point to which the ligature had been applied, was dilated into a sack, which was plugged up with a dense fibrous deposit. The portion of the tumour which was within the chest, was much more voluminous than that which rose into the neck.

The anterior surface of the thoracic portion of the tumour was firmly adherent to the sternum. There never was a more splendid specimen than this, showing the manner in which nature cures this formidable disease when assisted by art.

The lungs were free of adhesions, and of a healthy appearance; the heart itself presented nothing uncommon in its external aspect, but upon dissection it exhibited evident marks of inflammatory action, particularly in its ventricles; the semi-lunar valves at the origin of the *aorta*, were indurated from a deposit of ossific matter; the arch of the aorta was completely ossified and considerably dilated. The pericardium contained from 8 to 10 ounces of serum.

Case III. *Femoral Aneurism.*—On the 9th of December, 1832, John Granthier, a man of colour, ætat thirty-seven, a native of the island of Antigua, consulted me respecting an aneurismal tumour, situated on the femoral artery of the right side, where it winds around the thigh to pass through the tendons, opening to become the popliteal.

Granthier was a tailor, and had for some time previous to consult-

ing me, been compelled to quit his labour in consequence of severe pain in the popliteal region of the thigh; but having been told by some quack that it was a rheumatic affection, he determined to try what exercise would do for him. With this resolution he left Buenos Ayres to walk to San Isidro, a distance of four leagues. He had not walked more than a league, however, when the lower part of his thigh suddenly swelled and became extremely painful. With difficulty he returned to the city, he kept his bed for a few days, and the pain and swelling continuing, he was advised to consult me. I found his thigh and leg œdematous, but notwithstanding the œdema, the pulsation was so strong in the affected portion of the artery, as to leave no doubt as to the real state of the case. I bled him to twenty ounces, applied a roller from his foot to his groin; gave directions to have the roller wetted occasionally over the affected part with the *aqua ammoniæ acetatis*, and prescribed a saline cathartic draught. The following day the swelling of the extremity had nearly all subsided, leaving the outlines of the aneurismal tumour distinctly marked.

On the 13th of same month, I operated on the man, in presence of Dr. J. M'Donnell.

14th. My patient was doing well, with the exception of coldness in the great toe of the operated limb. Pulse 100.

15th. Night restless; headache; tongue white; skin hot; pulse 112, and hard. He was bled to fourteen ounces; saline cathartic mixture prescribed.

16th. The medicine of the preceding day had operated freely; slept well during the night; pulse 100.

17th. My patient on this day was every way better. Pulse 96; the wound was dressed and looked well. From this date, as nothing uncommon occurred, I ceased to take notes of the case until the 29th, when the ligature came away; and on the twenty-seventh day from the operation, my patient was able to leave his bed and walk.

Subsequently to this period, Granthier entered the United States service, on board the corvette Lexington, Capt. M'Ever, in which vessel he went to North America.

Case IV. *Popliteal Aneurism.*—On the 18th of January, 1838, Charles Wran, ætat 26, a native of Coventry, in England, came to my office, to consult me regarding a large pulsating tumour, which suddenly appeared, a few days previously, in the popliteal region, upon the right side. He was affected with congenital lameness of that side.

On the 30th of same month, I tied the femoral artery of this man,

in presence of Dr. M'Donnell, and Mr. Wilson, physician to the Scotch emigrants in Buenos Ayres.

There was a circumstance connected with the tying of the femoral artery, in this case, which, in a surgical point of view, is worthy of recording. The femoral artery, where it was tied,* was situated under the outer margin of the *sartorius* muscle.

This case was not marked by one untoward symptom. On the seventeenth day from the operation, the ligature came away; the extremity upon which I operated remained very weak for some time.

In the month of January, 1836, I heard of Mr. Wran, who was then residing in the Banda Oriental.

Case V. *Inguinal Aneurism.*—On Sunday, the 29th of November, 1835, I was requested to call at the house of Don Mariano Fernandez, No. 225, Calle de Belgrano, to see Don Juan Ferreira, a native of the town of Arreco, in this province, a man finely proportioned, of temperate habits, and industriously inclined. I found him suffering with an obvious aneurismal tumour, situated on the femoral artery of the right side, immediately below the crural arch.

After a minute examination, I gave him an undisguised statement of the danger of his situation, and explained to him the nature of the operation necessary for his cure, the probability of death occurring as a consequence of it; and, emboldened by my success in my former operations on the large arteries, I proposed to him to operate. He immediately acceded to the proposition. His pulse being full and laborious, I forthwith ordered him to be bled, to observe the horizontal posture, to sedulously avoid all unnecessary movements, and enjoined a course of diet almost bordering on total abstinence.

On the following Wednesday he received the consolations of religion, and on Thursday morning at ten o'clock, being asked, in the presence of the medical gentlemen in attendance,† and several other witnesses, if he were willing we should proceed, and, answering in the affirmative, he was placed in position, and the following operation performed.

In the lower and lateral part of the abdomen, on the right side, an incision was made, which extended from a little above the anterior superior spinous process of the ilium to within half an inch of Poupart's ligament; by this wound, the tendon of the external oblique muscle was laid bare, which was divided to the entire extent of the

*About two inches and a half below the origin of the *arteria profunda.*

†Drs. Pineda, Almeira, and Bombilier, who rendered me every assistance through the various steps of the operation with their accustomed scientific precision.

external incision; the internal oblique and transversalis muscles were then detached from Poupart's ligament, and insinuating my finger between them and the peritoneum, they were divided directly upwards to the extent of two inches with a probe-pointed bistoury. The peritoneum was then detached from its surrounding connexions, and pushed upwards, together with the bowels occupying this region, towards the sacro-iliac junction. The external iliac artery was now sought for, and easily found, and being pressed against the *psoas magnus*, the aneurismal tumour ceased to pulsate. The artery was detached and raised from its bed to a small extent, an aneurismal needle, armed with a flat silk ligature, was passed under it, the needle was withdrawn, and the artery secured. The wound was dressed, the leg bandaged with a flannel roller, the entire extremity wrapped in warm flannels, and the limb being placed in an easy posture, bottles of hot water were applied to the leg and foot. The operation was performed on a bed prepared expressly for the patient.

This man, who bore the operation with fortitude, now became low spirited, and expressed his fears of immediate death, and anxiously supplicated for relief. An anodyne draught was administered, when he became composed, and every thing went on well. At 10 o'clock at night his pulse was 86.

4th. He passed a good night; skin moist; pulse 88; the thigh and leg were of the natural temperature.

5th. I found my patient cheerful; pulse 90.

6th. I dressed the wound, in which union by the first intention had taken place to a considerable extent, I therefore withdrew the sutures. To continue giving a daily account of this case would be tedious, as nothing uncommon occurred until the eleventh; on which day his pulse fell to 60, and he complained of languor at the *scrobiculus cordis*, and as he had been then restricted for twelve days to rice water, I allowed him chicken broth.

On the 18th, fifteen days from the operation, the ligature came away.

Notwithstanding the early separation of the ligature, the original portion of the wound continued to suppurate until the tenth of January, during which time my patient remained in bed without a murmur, and on the seventeenth of the same month, the wound being firmly cicatrized, he left his bed with the perfect use of the limb, for the cure of which the operation was performed.

I embrace this opportunity of expressing my thanks to Dr. Pinkney of the United States navy, and to Dr. Chase, fleet surgeon of the United States' naval forces on the Brazilian station, for the prompt-

ness with which they visited my patient at my request, and the anxiety they expressed for the favourable termination of the case, and likewise to Dr. Read of the Royal Navy, for similar kind offices. As the latter gentleman saw my patient when perfectly restored to health, and being desirous that the fact should be accompanied by his testimony, I wrote him a letter, to which the subjoined is an answer.

On board H. B. M. S. Rapid,
lying off Buenos Ayres, January 27, 1836.

My Dear Sir,—In this moment I have received your letter respecting Don Juan Ferreira, in whose person you performed an operation to cure an aneurismal tumour of the right groin.

I have not the least difficulty in uniting my testimony to that of the medical gentlemen who were present at the operation, and in saying that the patient, previous to it, was afflicted with a serious surgical disease, which might have terminated his existence from one moment to another; but which has been avoided by the boldness and judiciousness of your practice, in exposing and fortunately placing a ligature on the external iliac, all of which has terminated happily for the subject, and much to the honour of your medical and surgical knowledge. I have now only to add, that yesterday I visited with you your patient, Ferreira, who is in good health, and enjoying the perfect use of both the inferior extremities.

If your time will permit you to give me a concise account of the operation, I will transmit it to London for publication.

With sentiments of the most profound respect,

I am, dear Sir, your most obedient servant,

(Signed) John Read, R. N.,

Member of the Royal College of Surgeons, London, &c. &c. &c.

To M. Morrisson, M. D., Buenos Ayres.

Case VI. *Popliteal Aneurism.*—About the beginning of March, 1836, I was requested to be present at a consultation of surgeons, at the Bakery, behind the Recoleta. The patient, Don Genaro Damico, ætat 33, a native of Marseilles, in France, a tall, healthy looking man, of most temperate habits, whilst on horseback, some days before, and engaged in the pursuits of business, was suddenly attacked with excruciating pain in the popliteal space of the left side. Upon putting down his hand to ascertain the cause, he felt a large pulsating tumour. He immediately applied to his family physician, who advised him to go home and keep himself quiet, have leeches applied to the part, and cooling and sedative applications.

The gentlemen who were present at the consultation, were unanimous in their opinion that it was an aneurism of the popliteal artery, requiring an operation for its cure.

About a fortnight after, I was again called to fix upon the day for the operation, and was sorry to find the soft parts about the joint much inflamed, the aneurismal tumour larger, and the pulsation extending above the tendinous opening, through which the femoral artery passes to become the popliteal.

On the 23d of March, at 12 o'clock, the course of the artery being ascertained, the operation was commenced by making an incision, which extended from an inch below the origin of the *arteria profunda femoris* to a little below the angle formed by the *sartorius* muscle, crossing the track of the femoral artery.

The cellular tissue was then divided, and the femoral fascia laid bare. The fascia was now divided to a small extent, so as to admit the introduction of a grooved director; to enlarge the size of the opening already made in the fascia a probe-pointed bistoury, guided by the director, was introduced, and the incision enlarged to a sufficient extent to expose the sheath of the artery. In this step of the operation a branch of an artery was divided, which filled the wound four times with blood. Pressure was made on the femoral artery, where it passes over the brim of the pelvis, and this arterial branch secured by ligature.

The sheath of the femoral artery was now divided, an aneurismal needle armed with a flat silk ligature passed under the artery, the needle was withdrawn, and the ligature secured. The wound was then dressed, and the patient put to bed.

24th, at 10, A. M., passed a good night: pulse 106; at 6 o'clock of the afternoon of this day his pulse rose to 120; he was bled to fourteen ounces.

25th. Passed a restless night; skin hot; tongue white; pulse 130. Ordered a saline cathartic.

26th. Pulse 120; and hard. V. s. ℥xij., the blood was buffed.

27th. Wound dressed: we now saw the cause of the symptomatic fever with which my patient was suffering, a large abscess formed occupying the space between the top of the wound and Poupart's ligament. Emollient poultice.

28th. Suppuration copious; there was a slight arterial hæmorrhage, which took place at 8 o'clock this morning, as I believe, from the arterial branch which was cut during the operation, a circumstance already mentioned.

29th. My patient had a severe chill during the night, followed by

a high degree of fever and delirium. In the afternoon, owing to the immense discharge from the wound and abscess, and the very bad character of the discharge, a decoction of Peruvian bark, with sulphuric acid, was prescribed.

30th. I had the satisfaction to find my patient in every respect improved, the discharge had diminished in quantity, and was much improved in quality; pulse 112.

From this date the patient went on progressively improving. On the 8th of April the ligature came away with the dressings, and on the 15th he sat up on the sofa.

I here express my grateful acknowledgments for the able assistance I received from Drs. Portela and Carter. The latter gentleman, who is a graduate of the University of Turin, being the family physician, attended with me, at the particular request of the patient, up to the day the ligature came away.

On the 28th May, I received the following letter from Señor Damico.

Buenos Ayres, May 28th, 1836.

My dear Sir,—The object of this, is not only to remit you what goes enclosed, but likewise to express my heartfelt gratitude towards you for the careful and able manner in which you assisted me during the course of my serious and painful disease. As it is not in my power to comply with my desires in a more munificent manner, you will have the goodness to consider me your most grateful servant.

(Signed) Genaro Damico.

To M. Morrisson, M. D.

[The preceding cases are highly interesting, and their results extremely creditable to the skill of the operator. We must however be permitted to express our regret that the details of several of the operations are less copious and precise than could be desired.—Ed.]

Art. IV. *On Retention of the Placenta.* By Harvey Lindsly, M. D., Washington, D. C.

The degree of danger to be apprehended from the placenta remaining undelivered for some considerable time after the birth of the child, has been a source of no little dispute among obstetricians, both of

former and more recent times. Some contending that the accoucheur should on no account leave the house till its delivery is effected, and that if necessary, manual assistance should be afforded for this purpose—while others, as Paul of Egina, Morgagni, Van Swieten, Delius, Lanetti, Ruysch, Kerkringius, Pasta, &c., assert that little or no danger is to be apprehended from leaving it to the efforts of nature, and that at worst the danger in this case is not so great as arises from the violence that is often committed in endeavouring to bring it away by the introduction of the hand, inasmuch as in this latter case, inflammation to a serious extent is often brought on, and the patient's life more endangered than by trusting to the efforts of nature for the expulsion of the after-birth.

I apprehend, however, that in this case, as in most others, the medium between these extremes is the true point of safety and of science. I entertain no doubt that not only may the delivery of the placenta often be left with entire safety to the unassisted efforts of nature,* but that occasionally this would be the wiser course, particularly where the patient is of a peculiarly irritable temperament, and is predisposed to inflammation of the parts. I believe the danger to be apprehended from inflammation of the uterus, if the placenta be undelivered, is greatly exaggerated; for in a great majority of cases, nature will probably bring it away in the course of twenty-four hours with little pain and no risk; or if it should remain longer, we have a sufficient number of cases on record to prove that there is still no great inconvenience to be apprehended.

In looking over the medical periodicals of the last few years, I find, what had never been noticed by obstetricians of former times, (so far at least as I am acquainted with their writings) several examples of placenta which have never been delivered, and where the patients have recovered their health perfectly—menstruating and bearing children afterwards as usual. As these cases are very rare, not more than one or two, I believe, being on record as having occurred in this country, I have thought that a brief account of one which took place in my practice about a year since, would not be uninteresting to the readers of the American Journal.

On the 17th of November, 1835, I was called to see Mrs. K. aged sixteen years and a half. I was merely wanted to bleed her, she be-

*By leaving the delivery of the placenta to nature, I do not mean, however, that pulling gently at the cord, frictions upon the abdomen, &c., should not be used, for beyond all doubt, these simple means should *never* be omitted where there is any occasion for their employment, but merely that the introduction of the hand and bringing it away by force are not always proper.

ing under the care of a midwife. She had then been in labour about twelve hours; the head had descended low in the pelvis, and there remained until the next evening, (November 18th,) when the head was born without artificial aid. About twenty-four hours after this period (viz. Nov. 19th) I was called to see her because the midwife had been unable to bring away the placenta. She had had little or no pain since the birth of the child; her pulse was but slightly excited, and she was tolerably comfortable. I pulled gently at the cord, according to my usual practice, and at the same time directed frictions over the abdomen. In a few minutes, to my surprise and regret, the cord broke suddenly, without there having been any intimation that such an accident was about to occur by a gradual yielding of its insertion, and although I had not exerted nearly as much force as I generally do, as I was apprehensive it would give way in consequence of its having been used by the midwife in her efforts to extract the placenta.

As she had had nothing like labour pains since the birth of the child, and the os-uteri was somewhat relaxed, I determined to give the ergot a trial. This was accordingly administered in full doses: in a short time free emesis was produced, but without any contractile effort of the uterus. Whether this deficiency was owing to the inertness of the ergot made use of, or not, I could not ascertain, as it was not thought advisable to make a second trial of the article.

Having been disappointed in this attempt, I resolved, without further delay, to introduce my hand into the vagina for the purpose of bringing down the after-birth. This, however, was no easy matter: the os-uteri was now contracted with a considerable degree of firmness, and after this difficulty was overcome, and the hand fairly within the uterus, as the rupture of the cord had deprived me of the usual guide to the placenta, it was extremely difficult to distinguish it from the uterus itself. After some delay, a portion was fully recognised, but its connexion with the uterus was so intimate, that the slightest attempt to separate them gave the patient exquisite pain, and in a few moments she positively insisted upon the effort being relinquished.

I now directed a gentle laxative, to be followed in two or three hours by an injection. As the patient lived at a considerable distance from my residence I did not see her again until the next morning, when I again attempted to introduce my hand into the vagina. This operation was, however, now more painful than it had been the evening previous, for a good deal of irritation, pain and inflammation had

come on, and after a few attempts the patient absolutely refused to permit me to proceed.

Professor Sewall was now called in consultation. He also attempted to introduce his hand, but on account of the severity of the pain and the opposition of the patient, with no better success than myself. Her pulse was rapid and rather small, and weak; she complained of great pain and irritation in the whole of the uterine region, and considerable swelling of the abdomen had taken place. Upon consultation, leeches were directed, but these being objected to, the pain and inflammation were assuaged by warm fomentations with hops, assisted by purgatives and diaphoretics. It is unnecessary to detail the minutiæ of the subsequent treatment, as it was conducted entirely on general principles. The patient continued in a very critical state for several days, when her unfavourable symptoms gradually abated, and in the course of three or four weeks she was able to leave her room. During the whole of this period, *no part* of the placenta came away, at least, so I was assured by the patient, and her nurse, a very intelligent and respectable woman, and I have no reason to doubt the correctness of their statement.

March 10th. Saw the patient again; she declared that no part of the after-birth had yet come from her. Her health is now good: but I neglected to inquire whether she had menstruated since her confinement, which I particularly regret, as she has since left the city and I have not been able to hear from her.

As having some bearing on the question, how long one ought to wait after the birth of the child, before we introduce the hand for the purpose of extracting the placenta, or whether, as some accoucheurs insist, (among whom are Haller, Sandifort and M. de Saint Amand) we should not introduce it at all except under the most peculiar circumstances, I will briefly recapitulate one or two cases as samples of several which have occurred in my practice.

In January, 1832, Mrs. W., a lady of good constitution and rather robust person, had a somewhat tedious labour with her first child, it being about twenty-four hours from the commencement of pain to the birth of the child. It was terminated without any peculiar difficulty, and after waiting a few minutes, I made use of the ordinary means to hasten the descent of the placenta. This, however, did not take place, notwithstanding every exertion on my part, by pulling at the cord, rubbing the abdomen, &c., until after a detention of three or four hours, being unwilling to leave the patient undelivered and having urgent calls elsewhere, I introduced my hand, and after much pain to the patient and considerable difficulty to myself, seized the

placenta and brought it away. The irritation of the operation, however, and the excitement and fatigue undergone by the patient in consequence of it, caused no little degree of fever, so that she was really quite ill for several days afterwards, owing wholly, as I believe, to the disturbance mental and corporeal, which she suffered at the time from the means made use of.

In her second labour, there was no peculiar difficulty, the placenta descending in about half an hour after the birth of the child upon a little traction being made with the cord.

Her third labour took place last winter. The same delay and difficulty occurred in the delivery of the placenta as in the first instance. The usual means were employed for an hour or more, but without effect. I determined in this case, to leave it to the efforts of nature, and accordingly, after having explained the circumstances to my patient, I left her for about twelve hours. On my return I found she had had but little pain: the uterus, however, had contracted considerably, and on drawing very gently upon the cord, the after-birth came away in a few moments. There was no pain or fever afterwards, and the case altogether presented a favourable contrast to that of her first confinement. I could report several other cases of similar character, but they are unnecessary.

After all, however, I would by no means recommend this course to be invariably followed, but merely indicate my opinion, that there are cases, and not unfrequently too, when it would be better to leave the result to nature than attempt to expedite her movements by art. No general rules can possibly be given in cases of this kind, to which there shall not be numerous exceptions, and the skilful and intelligent accoucheur will seldom or never be at a loss in their application.

Art. V. *A case of Excision of the Elbow Joint.* By Thomas Harris, M. D., Surgeon U. S. Navy, and of the Pennsylvania Hospital.

Mary Plunkett, aged 26 years, married, a native of Ireland, and has lived in the United States seven years.

She was admitted into the Pennsylvania Hospital on the 6th of August, 1834, with a severe inflammation of the elbow joint. Six months previously to her admission, she fell with great force on her left elbow, which at the time gave her great pain, was much aggravated by motion, and followed by the usual symptoms of inflammation.

After the lapse of three months, the pain diminished, the use of the arm was in some degree regained, without the benefit of surgical assistance. About this time she received a kick from a cow on the wrist of the injured limb, which reproduced the inflammation of the injured articulation, and caused much subsequent suffering.

Some months afterwards she was brought to the Pennsylvania Hospital, and, on examination, it was found that the internal condyle had been broken, but had partly reunited. The joint appeared in a state of suppuration, and was pointing between the olecranon process of the ulna and internal condyle of the humerus. The abscess was opened by a bistoury, which afforded some relief from the pain; and, as the cartilages lining the articulation were not removed or even roughened, hopes were entertained, that by proper management, the joint might be saved. In the course of six weeks or two months this hope proved illusive—the joint became worse, being greatly swelled and severely painful. She became deprived of rest, could not permit the slightest movements of the limb—several new abscesses formed, which were opened in succession, caries commenced in the bones which entered into the composition of the joint, and fungous degenerations formed, which required the frequent application of caustic to repress. In this state she remained until the following spring, when she became hectic, attended with a frequent cough.

Observing these alarming symptoms, I proposed to her the alternative, either to have the arm amputated, or to have the joint excised. She preferred the latter, and submitted to the operation on the 5th of June, 1835.

The operation was performed in the presence of my colleagues, Drs. Barton and Randolph, the house physicians, Drs. Kirkbride and Gerhard, and a large class of medical students.

The operating table was covered by a mattrass, and she was placed on it with her face downwards, by which the back part of the arm could be more readily commanded. The operation was performed according to a plan proposed by *Moreau*, and afterwards successfully practised on by Mr. James Syme, surgeon to the Edinburgh Surgical Hospital. The figure 11 gives an outline of the first incisions. The transverse cut was made by passing the point of a strong bistoury above the olecranon process, and parallel with its inner edge, by which the skin, cellular texture and tendon of the triceps muscle were divided. It extended to the radial side of the tuberosity of the humerus, and at such a distance from the inner one as to avoid the ulnar nerve. I then cut upwards and downwards for the space of an inch and a half from either end of the transverse incision, so as to form two

flaps, which, when dissected off the joint, fully exposed the olecranon process. The soft parts, including the ulnar nerve, were drawn aside by curved spatulæ, and then, by means of a common amputating saw, the process was readily removed.

The condition of the joint was now carefully examined, and all the articulating surfaces were found to be in a state of caries. I first divided the ligamentous connexions, and then, with the aid of nippers and the oblique cutting pliers, the head of the radius and the diseased surfaces of the ulna and humerus were perfectly removed. After securing two branches of the articular arteries, the joint was neatly cleansed, exposed to the air for a short time, until the oozing of blood ceased, then the flaps were laid down, maintained in their position by sutures, and afterwards dressed in the ordinary way.

The chief difficulty which I experienced in this operation was in avoiding the *ulnar nerve.* In the natural condition of the parts, as for example, in operating on the dead subject, the nerve can be easily placed without the reach of the knife; but when the soft parts are altered in their nature, when the structure becomes thickened, dense, and unyielding, it is necessary, in order to avoid wounding this important nerve, to observe the greatest precaution.

The operation being severe, gave no inconsiderable shock to the nervous system, which was evinced by stupor, difficulty of articulation, deglutition, and respiration. These symptoms were removed, however, in twenty-four hours, by sinapisms to her extremities, and stimulating enemata.

On the 7th, the symptoms were improved—the pulse 34 in a minute, and the skin cool and moist.

On the 9th the wound was dressed, and exhibited a healthful appearance.

On the 10th secondary hæmorrhage supervened, preceded by intense pain in the joint. The flow of blood was arrested by compression, but not until she had lost about sixteen ounces. Neither the bleeding nor pain in the wound was renewed, but she occasionally suffered excruciating pain about the umbilical region, which, however, was always speedily relieved by laudanum injections.

July 25th, the patient is walking about her ward, with her arm in a sling, and secured by angular splints. Hectic fever and cough have disappeared; appetite good; strength returning, and her health in all respects rapidly improving.

July 30th, patient has a considerable degree of motion in the joint, the wound is nearly healed, and she has every prospect of having a useful arm and good health. Being poor, and lacking comforts at

home, she was persuaded to remain in the hospital until her health was entirely recruited, and her arm so completely restored, that she would incur no risk in resuming her rough and laborious duties.

December 4th, 1836, this patient called at the Pennsylvania hospital, was examined by Drs. M'Crea and Kirkbride, and found not only in good health, but her arm very little deformed, considerable motion in the new joint, and perfectly able, according to her own account, to work in the hard way to which she had been accustomed.

The result of this operation, which, so far as I know, is the first of the kind performed in the United States, is in every respect gratifying. It is the more so, as our amputations in the Pennsylvania Hospital have terminated, in so many instances, fatally. During the last two years, we have lost at least one in four cases, by the formation of metastatic abscesses, either in the brain, lungs, or liver. It has been reported by the surgeons of the Hotel Dieu, that more than half their amputations terminate in the same discouraging manner. Nor ought this effect to excite our wonder, since by lopping off a considerable portion of the body, the equable action of the system is, in some degree, destroyed, causing thereby more or less disturbance in its functions.

The objections to this operation consist in the difficulty in performing it, and the great suffering which it causes. These objections, however, are more than counterbalanced by placing the life of the patient in less jeopardy, and by the preservation of a useful limb.

Of fourteen cases of diseased elbow joint on which Mr. Syme operated, eleven perfectly recovered.

Art. VI. *On Hydrophobia.* By Charles A. Lee, M. D., of New York.

During the present season there has been considerable excitement in our city on account of the occurrence of several cases of hydrophobia, and the prevalence of rabies among dogs; but up to the present time there have been but four or five deaths, within my knowledge, by that disease. As two of these came under my own observation, I shall communicate such particulars as are most important.

Case I.—J. Jameson, aged 12, was bitten by a mad dog about the first of April, in the middle space between the fourth and fifth metacarpal bones of the right hand, one tooth entering the little finger.

In two or three days the wound was entirely healed. The hand was well soaked in weak ley, and balsam of fir applied for a few days. His health continued as good as usual till the 29th day after the accident, when he complained in the morning of chilliness, which was attributed to throwing off the bed clothes during the night. On the 30th day he accidentally fell from a fence upon his back and shoulders, which gave him a severe shock, and doubtless hastened on the attack. From the day he was bitten he had drank freely of a strong decoction of *Scutellaria lateriflora*. While in school he complained of much pain in the part which had been wounded, and his arm twitched so violently that he had to hold it with his other hand to keep it still. On the 31st day he complained of general uneasiness and increased pain in the hand, and flashes of heat and cold rapidly succeeding each other.

Wednesday, 32nd day. He began to experience much difficulty in swallowing, and expressed great apprehension that he "was going to be mad." From hearing the neighbours and family constantly talking about it his fears had become much excited, and his mind was strongly impressed with the belief that he should die in consequence of the bite. The sight of a cup or tumbler threw him into great agitation, and he said he should choke if he attempted to swallow. His thirst, however, was very great, and there was a sense of burning heat in the stomach. When he attempted to drink he snatched the cup in his hand with a convulsive gripe, and after a considerable convulsive struggle, eagerly brought it to his mouth and swallowed it as soon as possible. It would seem that he had the power of controlling the spasmodic affection in a considerable degree by reflection. The heat of the skin at this time was considerably above the natural temperature, and the pulse increased in force and frequency. He still complained of hot and cold flashes, and could not bear the least breath of cool air, which invariably threw him into spasms, and which interrupted his respiration almost entirely for a few moments; indeed the diaphragm and the other respiratory muscles seemed to be those chiefly affected. He was inclined to be in constant motion, jumping up and down, climbing up the walls, on to the bureau or any thing near him, and a horizontal position was extremely painful. He sat up mostly in bed, bracing his back against the wall for the purpose of keeping himself steady. He seemed to be perfectly sensible of what was passing around; indeed his senses were preternaturally acute, and he requested his father to hold him, as he said "he could not otherwise keep still." He was very talkative, and told the bye-standers not to be afraid, for "he would not bite them." In his attempts to cough

up the viscid phlegm or mucus secreted in the bronchi, he made a noise which some compared to the whining of a dog; and with a little aid of the imagination, there might be traced some resemblance. His eyes were wild, glassy and staring, and the greatest anxiety was expressed in his countenance.

Thursday, 33d day. The pulse more feeble and much increased in frequency; anxiety and restlessness greater; thirst still more urgent, and all the symptoms aggravated. Towards evening the agitation became extreme; he talked incessantly, and it required a strong man to keep him on the bed; he had, at times, for a few moments, raved incoherently, but generally his intellect was unimpaired. He made no attempts to bite or injure any one. Occasionally he seemed to swallow with considerable facility, and the sight or sound of water affected him but slightly. His appetite continued nearly natural during the whole course of the disease; he would eat almost any solid food which was given him, but the stomach rejected every thing taken, enveloped in a green slimy mucus. A short time before he breathed his last he requested his father to rub his chest and limbs with hot brandy, saying, "I am not dead yet, and who knows but I may get well after all." He complained of great pain at the præcordia, and the sense of suffocation became more and more distressing; the muscles of respiration were almost constantly affected with spasms, and he continued rational until he expired, at one o'clock on Friday morning, the 34th day from the time of receiving the wound. It ought to have been mentioned that pain in the head was an early and prominent symptom, and that for some time before death he entirely lost the use of the arm and hand affected. There was no discoloration about the wound nor discharge from it; but after death it became more distinct, and assumed a shining, glassy appearance. As the treatment was unsuccessful it need not be given.

Autopsy, eleven hours after death.—External appearance livid, limbs rigid, almost impossible to bend the arm; by raising the head the whole body was elevated. The muscles appeared more fluid than usual, especially the intercostals. On elevating the sternum the lungs had a mottled or marbled appearance, and the air cells were full of a bloody frothy serum. The left lobe was remarkably injected with blood, which was universally fluid. The pericardium contained rather more than the natural quantity of serum. The stomach contained a small quantity of green mucus, and was contracted to about one-half its usual dimensions. The mucous membrane of the stomach was much softened and deeply florid in patches, and about the pyloric orifice of a scarlet hue. The small intestines, as well as the large,

were filled with air, and the former injected in many places, and in some of a livid colour. The liver was natural; the gall-bladder full of bile, of a healthy aspect, which had tinged the neighbouring viscera by transuding through its coats. The muscles of the larynx and pharynx were evidently highly inflamed, being of a deep livid colour; those on the internal surface had the same injected appearance in a still greater degree. The mucous membrane of the trachea and bronchia was also much inflamed, but the œsophagus only at its upper portion, the lower being of a light gray or ash colour; the trachea and its ramifications were filled with frothy serum and mucus. I examined the part bitten, but found no traces whatever of inflammation; the teeth, I should judge, did not penetrate far below the skin. The brain and spinal marrow were not examined.

Case II.—Marcus Lovell, aged 4 years, was severely bitten two months before his attack by a rabid dog, which also bit several other persons in the same street. The wound was in the right cheek, which was laid open nearly three inches in length. The part was thoroughly washed with salt water and allowed to heal. He remained perfectly well until Tuesday, the 60th day, I believe, from the time he was bitten. He appeared feverish, and was much inclined to sleep. His father now gave him four grains of calomel, and the next morning called in Dr. Pond, his family physician. The skin was preternaturally hot, the pulse frequent but strong, the tongue slightly furred, the eyes glassy and staring, and there was a constant jerking or twitching at the muscles, as in chorea, and incessant motion. It was with much difficulty he could be made to lie in bed. There was also false and, at times, double vision, and a picking at imaginary objects, as in delirium tremens. There was also total inability of swallowing, and the sound of water threw him into great agitation. Calomel was prescribed in alterative doses, and mercurial ointment for the purpose of inducing mercurial action. Two grains of belladonna were also administered through the day. At evening the pulse was 120; the skin hot and dry; restlessness and agitation increased, and swallowing still impossible. He was now bled to about eight ounces from the arm, and twelve leeches applied to the neck, with no abatement, however, of the symptoms. He slept but little, if any, through the night, but continued perfectly rational. The greatest horror was depicted in his countenance at the sight or the bare mention of water, but at the request of his father he resolutely walked to the bathing tub and suffered himself to be immersed. His breathing was difficult, and interrupted by frequent sobs and sighs; respiration being evidently impelled by spasm. His mind was perfectly rational, and he answered

questions with much propriety and promptness. When asked if he would drink, he invariably replied that he could not swallow. He made no attempt to bite, nor did he utter any sound which could be compared with the whining or barking of a dog. His head was permanently drawn forwards, his chin resting on his chest, and from constant motion the skin was considerably abraded. The tongue continued to be but very slightly furred, though one side of it was swollen. He inclined to sit up in bed, with his back braced against the wall, and if requested to lie down he would do so, but immediately start up, as if the recumbent posture was impracticable. His throat frequently got filled with a tenacious phlegm, which he would hawk up with difficulty and spit into a vessel which he asked for. During the forenoon of Thursday the vapour bath was employed for the space of half an hour or more; the application of the hot vapour to the skin seemed to increase his general agitation and spasm, and was manifestly painful; it had no effect in calming or relaxing the little patient, as far as could be observed. The mercurial practice was continued until he had taken about one drachm and a half of calomel, and a large quantity of ung. hyd. had been rubbed in, but without touching the gums or moving the bowels, which were totally torpid from the time of attack. Soon after coming out of the vapour bath he passed half a gill of urine, of a rather deeper colour than natural; he also took a little bread and milk, which was the first food he had been able to swallow. Stimulating enemata were administered without effect, and also starch-water and laudanum. He continued to grow worse during the whole of Friday. The pulse became more frequent and feeble; he was bathed in perspiration. Spasms could be produced at any time by pressing over the region of the cervical and dorsal vertebræ. He was able to swallow small quantities of coffee. His eyes were glaring and wild, and the utmost terror and anxiety were depicted in his countenance. He seemed to have almost entire possession of his faculties till he breathed his last, about 9 o'clock on Friday evening.

Autopsy—fifteen hours after death.—Body and limbs rigid—wound of the cheek inflamed, and has discharged some purulent matter. An incision was made the whole extent of the spinal column, and the muscles dissected up. The vertebral canal was laid open from the occiput to the first lumbar vertebra, and the sheath exposed. This was found distended with serum. The cervical portion of the cord was deeply congested, and the pia mater extremely vascular. Marks of intense inflammation extended from the medulla oblongata down to the middle dorsal vertebra, the portion below being apparently

healthy. The theca vertebralis must have contained two or three ounces of serum. The superior portion of the cord was considerably softened in its texture, but not broken down. In the centre of the spinal portion was a canal into which a small quill could have been introduced. It was full of fluid, and extended about four inches in length. The dura mater of the brain adhered firmly to the skull, and was extremely vascular. All the veins on the external convolutions of the brain were distended with blood as well as those of the interior. The substance of the brain was of the usual firmness, but of a redder colour than natural. The ventricles contained more than an ounce each of serum. Marks of inflammation were still more strongly developed in the cerebellum and medulla oblongata, particularly at the base of the brain. Some effusion was observed under the tunica arachnoides, and the vessels of the pia mater were universally injected. The stomach was small and contracted, its mucous coat being thrown into rugæ. This membrane was much softened in its whole extent, and broken down into a pulpy mass which could be easily scraped off with the finger. It was covered with a tenacious gray mucus, beneath which the vessels were injected, giving it a crimson hue. The same appearance was observed in the small intestines. A small quantity of dark coloured mucus was found in the stomach. The liver was natural, the lungs congested, and the air cells filled with frothy serum, as also were the bronchi and trachea. The muscles about the throat and larynx were injected, though the congestion was less than in the former case. The lymphatic glands of the neck were much swollen, and the *par vagum* preternaturally large.

Case III. The following case occurred under the care of Dr. Wells, to whose kindness I am indebted for the particulars. John M'Cormic, aged 44, servant of C. C. Moore, Esq., was bitten slightly in the hand by a fox, about three months before. The fox sickened and died two days afterwards, but nothing in particular was thought of the occurrence, and there were no suspicions entertained that the animal was rabid. On Saturday, while in market, he was suddenly taken ill, with a severe pain in his head and some stiffness about the jaws. In the evening he called on Dr. W. and complained of difficulty of swallowing, oppression at the chest, and a spasmodic action of the respiratory and laryngeal muscles. Some simple remedies were prescribed, and the next morning unequivocal symptoms of hydrophobia were present. The sight of fluids threw him into violent spasms, and there was total inability of swallowing. He was bled profusely from the arm, with some alleviation of the symptoms. Forty-five leeches were applied over the course of the spine, but as

he continued to grow worse, he was removed on Saturday afternoon to the Alms-house Hospital, where he died early on Sunday morning. As the symptoms were similar to those already detailed, they need not be given. No dissection was made.

Remarks.—In respect to the pathology of hydrophobia, I suppose it will be universally conceded that a morbid poison is introduced into the system, and that its influence is chiefly directed to the centre of the nervous system. M. Troillet supposes that the mucous membrane of the trachea and bronchia is the seat of the morbific virus, as he found it covered with frothy mucus of a peculiar kind, but it does not appear that in any of his dissections he examined the brain and spinal marrow. The first symptoms are those of morbid sensibility of the nerves of sense, especially those of the glottis, and those of motion do not long remain unaffected. In the case above detailed, the membranes as well as the substance of the cerebellum, medulla oblongata, and upper portion of the spinal marrow exhibited marks of high engorgement and inflammation. This condition, it is presumed, will satisfactorily account for all the phenomena observed. If, moreover, it be the correct pathology, the indications of cure can only be met by powerful depletion, aided by sedatives. There is every reason to believe that it is an inflammation of a most rapid and disorganizing kind; hence, to be successful, the depletion must be prompt and carried *ad deliquium*. It would not be difficult to show by a comparative estimate of the effects of different modes of treatment in this disease, that copious bleeding has been by far the most successful. In the Philosophical Transactions for 1738, a case of hydrophobia is reported by Dr. Hartley, which was cured by the abstraction of 120 ounces of blood in the course of a few days; and in the Historical Magazine for 1792, Dr. Rupel states that a vein was opened in a young woman affected with rabies, and suffered to bleed until she fell down in a state of syncope, with the effect of arresting the disease. Dr. Rush was a strenuous advocate for copious bleeding in hydrophobia, and he adduces several cases in which it proved successful. In the Medical Repository for the year 1806, a case of hydrophobia is reported by Dr. Burton of Virginia, in a letter to Dr. Rush, where bleeding to the extent of 150 ounces, in 24 hours, effected a cure. Dr. Shoolbred also relates a case, (Ed. Med. and Surg. Journal, 1813,) where he drew forty ounces of blood from a large orifice at once. Syncope ensued, and the disease was arrested for a time. As the symptoms appeared to increase again, the patient was once more bled to fainting, which had the effect of completely subduing the *water-dread* and paroxysms of fury. Calomel and opium

were then given for some time, and the patient recovered. A case is related in the Historical Magazine for 1692, where blood was drawn until the pulse could not be felt, and 100 drops of laudanum administered, with injections of 300 drops of the same, every two hours. The patient recovered. Several other cases could be pointed out, in which very copious bleeding has proved successful in the cure of this disease. In many instances, it is true, it has failed, but the same may be said of any treatment in any disease that can be named. All I am disposed to claim for it is a greater success than has attended any other plan.

New York, July, 1836.

ART. VII. *On Puerperal Convulsions.* By WM. DENNY, M. D., of Ellicott's Mills, Baltimore county, Maryland.

I have a great aversion to present myself before the profession, even as an essayist, on the pages of a periodical journal. My ambition has been long schooled down to the object of occupying a field of usefulness, limited to the circle of my practice; and there is enough of satisfaction and delight to be gleaned from the consciousness that my information is augmenting as I advance, partly by my own observation, and partly by the communicated experience of others, to content me from aiming at the higher function of giving, instead of receiving, instruction. But the country practitioner is apt to be placed under responsibility which he can neither shift nor shun, and its demand on his own resources creates an exercise befitting him to receive suggestions from what passes under his notice calculated to improve his means of encountering disease, and sometimes to point out to him the inapplicability, if not the danger, of some of the principles with which he came out armed from the schools. When a suggested improvement is real and of value, if he should feel desirous that others might derive advantage from the test to which he may have submitted such principles, and should throw his mite of information into the general stock, more as acknowledging than cancelling his debt to the profession, let him not be charged with self-sufficiency, even if the principle he questions emanate from the highest authority. On the other hand, should this be found to abide firm under examination and upon an appeal to facts, the very promulgation of his erroneous views may, in the end, subserve the cause of science; and even he, actuated by the

motives which alone become the medical philosopher, may be benefitted by the vindication of truth.

I offer some remarks on puerperal convulsions of the epileptic form, according to the division of Professor Dewees, having no experience of the apoplectic or hysterical. The attack of my second patient might, indeed, have assumed the first of these, had not the premonition been met by copious depletion; for, I take it, the epileptic and apoplectic forms differ chiefly in intensity. And, that I may not be supposed to have mistaken the hysterical for the epileptic species in any of my cases, I would observe that, although I have never met with hysterical convulsions in labour, I have practised for nearly twelve years in a populous manufacturing district, containing a large proportion of unmarried females, among whom irregularity of the catamenia is remarkably common, and that acute hysteria is an affection, however proteiform, with whose aspect I am familiar.

On first assuming the duties of obstetrician, the possible occurrence of puerperal convulsions was closely associated in my mind, with directions for its management, contained in the following words: "If it be asked, what quantity of blood should be drawn in any given case? I answer: I do not know by ounces—I bleed until I abate the severity of the fits, or until I arrest their repetition."*

Now puerperal convulsions are paroxysmal, and not continuous from their access to their termination in death or amendment; and making the above quotation a rule of treatment, the practitioner bleeds boldly and freely as soon as he reaches the bedside. In one or more minutes the convulsive movement abates and gives place to coma, which merges into apparently calm and quiet sleep. "The fit has abated, or ceased, and so far all is well." But, unable to forget the appalling scene which has just passed, he watches his patient's countenance with fearful anxiety. She, perhaps, awakens, looks wild, and is again convulsed. "He has not bled enough." He calls to mind Burns' remark, "'tis better to bleed too much than too little," as well as the observation of Parr, "that although this affection has been sometimes relieved by copious bleedings, we have to regret great loss of strength from the remedy"—a circumstance which does not weigh a feather in the scale, as the question is not between rapid and protracted recovery, but between life and death—he bleeds again, and to make sure of his case, he bleeds to syncope. Let it be duly remembered that death from hæmorrhage is often preceded by convulsions; and I am about to contend that the substitution of syncope for

* Dewees' Essay on Puerperal Convulsions, 1st vol. Am. Med. Recorder.

increased vascular action is by no means so safe an alternative that the young practitioner, unable to obtain a division of responsibility, should be sent into the parturient chamber, where the case is one of convulsions, with this only fear on his mind, viz. that he may lose his patient by bleeding too little. I would guard him from errors of either extreme. He should not lose sight of the maxim, "In medio tutissimus ibis," upon which the following cases afford a practical commentary.

Case I.—December 23d, 1821. Mrs. ——, aged about 20 years, at the end of the seventh month of her first pregnancy, was that day attacked by puerperal convulsions. It had been recommended to her to lose blood or obtain medical advice, but for what particular symptom I do not recollect; she, however, did neither. I found her enormously œdematous; the cellular tissue over the veins of the arm was so much engorged with serum, that, added to their unusually small size, it was impossible to bleed her freely. I made six or eight attempts, during 36 or 40 hours, and did not obtain a pound of blood. The os uteri was not impressed by any parturient effort, and I did not consider her in labour. She expired in something less than sixty hours, having had above 40 distinct convulsions, as counted by one of her female attendants.

Case II.—Mrs. ——, the mother of several children, thin, but of sanguineous temperament, florid complexion, with red hair, near the end of gestation, from being in perfect health at bedtime, was seized about an hour after with intense pain in the head and epigastrium, together with highly excited circulation, on the night of January 8th, 1828. I bled her to the control of the circulation and the removal of the local pain. I left her about eleven o'clock, there being no indication of labour, and as she expressed herself entirely relieved. In about two hours I was called back to her, as she had just had a convulsion, with the same activity of pulse as I noticed at my first visit. I bled her again; in half an hour I heard a sound like a "cat spitting," marking the access of another convulsion. I tightened the ligature and repeated the bleeding from the same orifice. Under this the pulse fell, the countenance became haggard and expressive of agony, and she was restless and agitated. Finding the os uteri open and dilatable, I cautiously delivered the fœtus by turning. In the midst of the manœuvre, from time to time I examined her pulse and found it prostrate. She ceased to breathe in about fifteen minutes after the removal of the secundines.

Case III.—I was called on the evening of July 31st, 1831, to attend Mrs. ——, aged 22, in her first accouchement. She had never been

prescribed for by any physician until during her present gestation, in the course of which she had been twice bled—the last time about a fortnight before I saw her. For some time past her appetite had been ravenous, and her habit had filled up rapidly under its indulgence; besides which she was œdematous from the face to the feet. These were so tender from tumefaction, that she had been unable to take due exercise. Her full appearance was partly embonpoint and partly œdema. There were slight uterine efforts, to which the os tincæ responded, and they were alternated with intervals of ease. Free secretion of glairy mucus, tinged with blood, from the vagina; head easy; mind tranquil; pulse quiet and natural. With this information I retired to bed.

At 4 o'clock next morning I was suddenly roused, and found her in a convulsion. Her pulse was rapid and of small volume; I opened two veins in succession, and had a bladder of ice applied to the head, which was elevated. When about ℥40 had flowed, (her intelligence having returned, after short coma, in the meantime,) she complained of great giddiness and throbbing of the temples, and pallor and marks of approaching syncope induced me to put a stop to depletion, and replace her in the horizontal posture. These symptoms passed into a second convulsion, but less severe than the first. At the termination of the second, strong and efficient labour pains came on, and about 5 o'clock, A. M., a still born fœtus was delivered; the placenta followed, without hæmorrhage.

Giddiness and throbbing of the temples still continued, and in another hour she had a third paroxysm, far exceeding the others in severity and duration, ending in deep coma, with stertorous breathing, dilated pupils, fixation of the eyes, pallor of countenance, dropping of the jaw, facies hippocratica and extinction of pulse. After a moment of painful suspense a slight flutter returned to the radial artery. She came out of this paroxysm with great uneasiness of stomach; for which, with the sanction of my friend Dr. A., who now joined me, she took a dose of castor oil, which was immediately thrown up, with some relief to the gastric suffering. An enema of castor oil and oil of turpentine was administered, which produced a number of serous alvine discharges; these continued for several days.

Her convalescence was tedious and her recovery imperfect; her pulse numbered 120 in the minute for many months. From being possessed of unusual fortitude, she became timid and nervous; from diffident and taciturn, forward and talkative; of which change she was perfectly conscious, and it was not until upwards of ten months

had elapsed that these aberrations of her nervous functions appeared to wear off.

She has been three times pregnant since, in which state she suffers greatly with disordered digestion and palpitation of the heart, but she has never completed the full term, having been prematurely confined with still born children. These pregnancies and confinements have occurred in an adjoining county, and not under my care.

While writing this paper, I learn from her husband that she is now (May 1st, 1836,) about the fifth month of gestation, observing great caution, and hopes are entertained that she may go through the process and bear a living infant.*

Case IV. I had been waiting all the night of March 31st, 1834, on Mrs. ——, 18 or 19 years of age, in her first labour, characterized by tedious and inefficient pains. The os uteri dilated slowly, however, and about 10 o'clock next morning the head had progressed through the pelvis, and was about on a level with the inferior strait. She complained rather suddenly of flashes of light over her eyes. I suggested to her, as a probable cause, the glare of sunshine by the side of the window blinds, as my own felt dazzled and uncomfortable. When the room was more fully obscured she assented to my explanation. Her pulse was full and somewhat accelerated. I contented myself with the belief that there was no ground for alarm, and as I turned from the bed she complained of some headache. In an instant the exclamation, "Oh, Doctor!" from a female near her, and the tone in which it was uttered, announced to me the attack of a convulsion. A vein was immediately opened and bled freely. The convulsive struggle terminated in short coma, succeeded by jactitation and ghastly physiognomy, and the pulse fell. My forceps having been sent for and arrived, as soon as the orifice in the arm was closed I delivered instrumentally, with great ease and gentleness; the afterbirth passed, and the womb contracted. Pulse at the wrist vermicular; agitation undiminished; countenance unimproved. In about an hour and a half from the attack she expired.

I have been informed since her death that she had been exceedingly swelled by œdema before her labour commenced, of which circumstance I was not aware at the time of my attendance.

* I understand from rumour that this lady has been again unfortunate; and that having had favourable prospects of good getting up, she expired on the 8th of July, five weeks after delivery, of some form of pulmonary disease, said to be attended by hæmoptysis and abscess. These untoward symptoms I am unable to connect, either with her situation in 1831, or with any thing I know of her constitution. I ought to have stated that no confinement since the first was complicated with convulsions.

Case V. On the 4th of April, 1835, I was desired to visit a German woman, Mrs. ——, who was said by the messenger to have fits in labour. She was about 20 years of age, and it was her first pregnancy. Her countenance had a bloated appearance, and I should have supposed her twice the age I have mentioned. I had some difficulty in getting information, for her husband spoke English very unintelligibly, and her parents nothing but German. She was lying comatose. I gathered from them, however, that she had had eleven convulsions. I determined to wait for a repetition, to decide whether the attack might not turn out to be hysterical; if so, I thought, there is but little danger, and if epileptical, she can scarcely be saved by any means. The pulse at the wrist was small, and almost countless, but the heart impinged powerfully against the parietes of the thorax. She soon had another fit, which I recognised as the more formidable species. Under all the circumstances, my judgment was cool and deliberate. I drew blood to command the action of the heart, but guarded cautiously against syncope, or that collapse of the powers of the circulation which may have resulted from ultra depletion in the 2nd and 4th cases above detailed. In depleting, therefore, I took the action of the heart, not the severity or repetition of convulsion as my index. During the flow of blood she had a thirteenth convulsion, and I noticed that increased tumult of the heart preceded its approach. Having closed the vein, I observed the thumb of one hand contract quickly but feebly towards the palm, and, coincidently, the heart pulsated again more violently. I drew two or three ounces more of blood, stopping as soon as the inordinate palpitation subsided. A byestander remarked, that she was sure the last bleeding prevented another fit, as she observed a flickering of the features, such as had preceded the previous ones; I had looked at the thumb, she at the countenance, both had discovered signs of an impending paroxysm, but each was ignorant of the indication observed by the other.

Labour-pains now came on vigorously, and in about four hours she gave birth to a still-born infant; the secundines followed, and the uterus contracted duly. I ought to mention that the head became stationary for some time near the outlet, that I applied the forceps, started it from its resting place, and then allowed nature to complete the process. During these four hours she moaned and uttered complaints in her native tongue, so that I could not judge by her ejaculations, whether her intellect was impaired or not. She did not reply, however, to some questions put to her by her husband, at my request, with the view to discover the return of mental energies.

Immediately after delivery, she fell into a deep and quiet sleep, her

pulse somewhat feeble; stroke of the heart distinct and normal; respiration full and equable. The next morning I found her better than I expected, and nothing occurred during the two or three weeks of getting up to embarrass perfect recovery. I have seen her within the last three months, and found her intelligent and sprightly, beginning to understand English, with pretty firm health. She has menstruated but once since her confinement, and is perhaps again enceinte.*

Case VI. I was engaged to attend Mrs. ——, æt. 22, in her first confinement, which was expected to take place about the middle of April, in the present year. About two months before that date, I noticed that she had grown very large, masking, in some measure, her appearance of pregnancy; she had occasionally bled at the nose to the amount of ʒi. or ij. Her feet were considerably swollen. A day or two before, she had experienced dizziness and temporary loss of vision. I bled her to ℥x., after which she felt better. On the last day of February, finding her pulse down to 56, and there having been some return of the above unpleasant symptoms, I drew a pound of blood. Her pulse soon rose to its natural frequency. On the 21st of March, she was unusually depressed in spirits, her bowels were constipated, and her œdema was then described to me as being inordinate and universal; her face was considerably bloated. I examined her pulse with great attention, and felt satisfied that the lancet was not then needed. She took an infusion of senna, and as that did not operate, she followed it, of her own accord, by castor oil. In the evening of that day, after I left her, she complained of headache, as I was informed a day or two afterwards.

I was sent for in the night and reached her at 2, A. M., on the 22nd. The purgation from her medicines seemed to the family to have occasioned great pain in the bowels. Her complaints were so like those of labour, that I made an examination. I was first struck

*I visited this patient again on the 7th of August, and was informed that she was then about the end of the seventh month of gestation. She was emaciated and 'lantern-jawed;' her appetite was indifferent, she was free from headache, her pulse was quiet, and there was no œdema. Her husband said, "she is quite different now, from what she was in her first pregnancy; *then* she ate up every thing before her, *now* she eats almost nothing, has nausea, vomiting, and suffers greatly from pain in the back." I predicted that her next parturition would be more favourable than the first. "There is no need at present to bleed her," the object for which I had been called on.

On the 12th inst. she prepared her husband's dinner, was taken with brisk labour-pains, and, before a horse could be got ready to despatch a messenger for me, she gave birth to a living female infant of medium size. I saw her on the 21st, sitting up, doing well, and furnishing a profusion of milk. October, 1836.

with the enormous œdema of the limbs and os externum. I found the presentation favourable, and fully occupying the neck of the uterus, and the tumour was impressed strongly by each parturient throe. The os tincæ admitted the forefinger readily, but as the contractions of the womb occurred, it embraced the finger like a ring.*

At half-past 6 o'clock in the morning, but little progress having been made, she said "I am giddy, 'tis the same sensation I had before." Her pulse was full, firm, but of normal frequency. In a minute she nearly bounced out of bed, in a severe epileptic convulsion. I opened a vein in each arm, and had her head covered with snow. Dr. H., who was in the house, came into the room at my request, and took charge of one arm, while I attended to the other. We suffered the orifices to bleed, or stopped them, according to the stronger or more feeble pulsation at the wrist. About ℥xlv. of blood were afterwards measured. Her coma was short, followed by a pallor of face, dilatation of the pupils, and great tossing to and fro of her body; but intelligence and sensibility to severe labour pains, which came on, unattended by the former irregularity of the movements of the os uteri, were perfect and complete. The passage dilated freely, and in two hours a dead fœtus, rather premature, was delivered. I sought through the abdominal parietes for the uterus, in order, by friction, to insure its tonic contraction, to save the system from the least hæmorrhage. The integuments were so swollen, that it was with some difficulty I could find the uterus at all; I was relieved, however, to discover it contracting duly, and expelling the secundines without sanguineous loss. She soon slept tranquilly, breathing easily and freely, with a pulse somewhat subdued, but not

*The following note, by the late Professor James, is to be found at page 48 of the 2nd vol. of Burns's Midwifery, 3d Am. ed.

"Dr. Clarke, of London, thinking it necessary in a case of convulsions, to turn the child and deliver it, a convulsion occurred while his hand was in the uterus, when, of course, he had an opportunity of observing how it was affected. He remarked, that instead of a regular contraction taking place, the uterus seemed to flutter, or be irregularly and tremulously contracted and relaxed again quickly, and he was disposed to believe that it was in that state during every case of puerperal convulsions."

The fact I have mentioned, though noticed some hours before the convulsion, is perfectly analogous to that embodied in the above note, both being the effect of irregular action of the uterus, and being probably secondary incidents, there is no more reason to lay stress on them to attract attention to the womb, as the primum mobile of the phenomena of convulsion, than to suppose that they occur in all cases of that affection, either coincidentally, as in Dr. Clarke's patient, or precursorily, as in mine.

prostrate. On awaking, about an hour after, she attempted to turn on her back, against my entreaties; her countenance assumed the vacant and haggard expression which had preceded the convulsion. I felt for the pulse at the wrist, and it was for a moment imperceptible. I dashed half a tumblerful of cold water in her face, and was happy to find her pulse and intelligence revive.

In due time, secretion of milk came on, but not in profusion, the lochia were natural, the bowels were sufficiently acted on by the assistance of laxatives, and the play of the absorbents and kidneys soon drained off the enormous serous deposit in the cellular tissue. She complained of some uneasiness in the head, and occasional buzzing in the ears; as these were evidently brought on or increased by effort, I would not suffer her to rise till after the end of the second week. On the fifteenth day I considered her rapidly convalescent.

A new train of symptoms, however, set in afterwards, ending in slight but decided phlegmasia alba dolens of the left lower extremity. These need not now detain us. It will be sufficient here to remark, that this lady went home to the north in June, perfectly well.

Humanum est errare, under the best efforts of the soundest judgment, and extraneous influences often intervene, to frustrate their application to the circumstances for which, and at the times when they may be most needed, though the error committed may be plainly disclosed to after reflection.

There is no position more trying to the medical attendant than that where the case before him is one of puerperal convulsions. His feelings have, perhaps, been hitherto those of impatience at delay, rather than of anxiety for the result. He has observed no premonition, or worse still, he has not regarded as serious its manifestation. Suddenly, there is a transition from safety and cheerfulness to danger and dismay. Expressions of instinctive alarm break forth from all the inmates of the room but his unconscious patient and himself, for which he knows there is but too much foundation. His presence of mind must be preserved, unwavering and unmoved by the agitation around him. Happy indeed will he be, if he can so poise his judgment and his means as to leave him no regrets for his exercise of either, should the issue prove disastrous.

In subjecting, therefore, to review, my own proportional amount of puerperal cases, complicated with convulsions,* I have sins of com-

*I have no facilities of referring to statements, showing what proportion of parturient women suffer by convulsions. It is loosely remarked, in Ryan's

mission and omission to confess. But an impartial witness will present to the tribunal at which he appears, the whole truth he possesses in the matters before it; and if the facts detailed bear the inferences I draw, and shall lead but one practitioner in a single case to profit by my exposition, I shall not have intruded on these pages in vain.

In my first case, I endeavoured to bleed *enough*, but was prevented by the circumstances stated, from succeeding. No meddlesome midwifery, however, was practiced. This patient may be considered to have died from the repletion or excitement which caused the convulsions, not having been reduced by sufficient detraction of blood.

The second case presented indication that the apoplectic species was at hand. This was correctly and timely met by a free venesection. My first error was to leave this patient during the temporary calm, in place of waiting to strangle reaction at its inception. Reaction came on uncontrolled, but, because of the first bleeding, the form of attack was reduced to epileptic. The use of the lancet, a second time, gave earnest, on my part, of the employment of energetic measures. Another convulsion was the signal to bleed again freely—too freely! This was the second error, but it was in obedience to the rule to bleed according to the severity or repetition of the fits. Believing that depletion had been carried to its utmost justifiable extent, I followed the ideas of those who look on speedy delivery among the means of combating the disease. I reasoned thus:—Gestation is one of the causes of puerperal convulsions—parturition is its only favourable termination. Now, as there are here no natural pains of labour, I must deliver artificially, which was done without hurry or violence. This interference constituted error the third.

There was no ground to anticipate danger in the third case, as I recognised no premonition. The lancet was used freely in the shortest possible period, after the access; I bled till the approach of syncope. What began as impending syncope, ended in convulsion. An improvement ensued, viz. spontaneous delivery. The third convulsion was severe, but it came on with signs of subdued arterial action, and I bled no more. In the propriety of this forbearance two medical friends, who visited the patient with me afterwards, fully concurred.

Sustained and commended by their authority, it would not be

Manual, that the French give 65 in 40,000 cases, i. e. one in six hundred and fifteen. In 6673 cases of delivery at the Midwifery Institution of Vienna, from November, 1831, to December, 1834, there were seven cases of convulsions. See London Lancet, No. 659. This is 1 to 953. My proportion has been unusually large, being about 1 in 100.

strange, if, by this case, I should have gained some reputation among the friends of the lady; it would not be as much so, if I laid claim to the sustentation and commendation bestowed. But candour obliges me to see one error, viz., I bled a little too far or too rapidly, and, when I threw aside the rule of treatment quoted from Dr. Dewees, and withheld the lancet, it was under the stern and intelligible facts before me, that syncope had ushered in the second convulsion, and that syncope was the result of depletion; consequently, to deplete further, would be to aggravate the condition of the circulation, on which syncope depends, and I might fasten the convulsions upon her, instead of removing them.

In the fourth case I suffered the precursor to pass without adopting measures of prevention, practised ultra-depletion, and then used the forceps. Here are three errors.

My treatment of this affection was thus far unsuccessful and unsatisfactory. I had lost my confidence in the infallibility of the lancet, and was not in possession of any substitute. I had no right to doubt that bleeding was an important remedy, but why has it failed in my hands, under a rule of treatment which has obtained for it signal triumphs in the hands of others? Is there not danger from excess in bleeding? We have ceased to prescribe other remedies for the names of diseases, and we regulate their application to conditions of the system. Why shall this agent be excepted from the improvements of our day? Shall we shed blood in puerperal convulsions because of their severity or recurrence, when it is known that a similar train of symptoms is often the consequence of hurtful waste of the vital fluid?

When the fifth case presented itself, under circumstances which allowed me to act free from agitation, I depleted with more legitimate aim, viz. to reduce the vigour of the circulation into moderate bounds, and to avoid carrying the practice to an opposite extreme. Dr. Copland says that the arteries of the lower extremities pulsate with diminished force and volume, while those of the upper and head are strong and active. But I have found the radial pulse convey no information of the excitement present. In the fifth patient this was the fact. I therefore turned to the signs afforded by the central organ of the circulating system, and found a guide. The treatment has been detailed, and the favourable issue of the case seems to confirm my reasoning.

In the sixth case the same therapeutics procured the same happy result.

Almost all authors refer the affection before us to an accumulation, or positive surplus of blood, in the vessels of the brain. Now, if such be the condition, what is to be feared? Rupture of one or more ves-

sels, and effusion of their contained fluids. The means of prevention, according to this idea, would be depletion by vs., "better too much than too little;" and he who theorizes thus loosely has no fears of ultra depletion. He can appeal to one authority when he bleeds till he shall abate the severity or arrest the repetition of the fits; and to another, that he will only have to regret great loss of strength from the remedy.

I complain of the directions of Professor Dewees and the cases attached to his paper alluded to, that they enjoin on the practitioner the bold use of the lancet, but leave him in the dark as to danger to be apprehended from its undue employment. Under the tact and judgment particularly his own, the able author may never have carried that agent to a hurtful extreme; but to others of less attainments and experience, neither the rule I have quoted nor the essay itself hold out any caution against the mischiefs to which I advert. They enforce on him who takes that rule as his guide in the treatment of puerperal convulsions, cerebral congestion as the cause to be removed, cerebral hæmorrhage as the accident to be averted; he bleeds under it ad libitum, and learns the injury the practice may inflict in a lesson, too late for his patient, however instructive to himself.

I ask then, is cerebral hæmorrhage a commonly discovered lesion in puerperal convulsions when fatal? Cruveilhier says it is rarely disclosed. Madame Lachappelle has found it only when the case has assumed the character of apoplexy.* Denman might also be referred to in support of the same fact, having never met with a single instance of effusion of blood, but he mentions that Mr. Hewson and Dr. Hooper had each seen *one* case. Dr. Ley also records an example.

It is remarkable that in my first case, in which depletion was deficiently practiced, and consequently where, according to received opinions, the vascular fulness either of the whole system or of the encephalon was left undiminished and uncontrolled, more than forty convulsions should have occurred before death: cerebral effusion could scarcely have taken place here till at a very late period, if at all: That in the second case there were but two convulsions, and death approached under the aspect of exhaustion and collapse: That the third patient evinced a long standing, if not permanent injury, after three fits, the second of which seemed clearly due to syncope. Now, if accumulation of blood in the vessels of the brain recurred to give rise to the third paroxysm, which was the most severe and protracted,

* See Med. Chir. Rev., for July, 1835, article "Des Convulsions chez les Femmes. Par A. Velpeau."

we might have expected cerebral effusion to have occurred and the case to have terminated fatally, as no further depletion was practiced: That the fourth patient sank, like the second, after a single attack; and that the fifth case ran on to twelve fits before a vein was opened at all, to thirteen before the affection was subdued, and yet this patient recovered speedily and perfectly. I therefore feel entitled to doubt the pressing danger of cerebral hæmorrhage in puerperal convulsions.

Pressure on the brain by vascular congestion or sanguineous effusion are commonly considered to cause apoplexy, palsy or convulsion.

Lallemand says, "in inflammation of the arachnoid membrane we have spasmodic symptoms, without paralysis; in hæmorrhage, sudden paralysis, without spasmodic symptoms; in inflammation of the brain, spasmodic symptoms, slow and progressive paralysis, the progress of which is unequal and intermittent."

Now the spasmodic symptoms in the disorder before us are of different origin from those he alludes to, and our business is not with the febrile and inflammatory affections; and although prepared to admit the occurrence of cerebral hæmorrhage and sudden paralysis in the relation of cause and effect, we are not bound to acknowledge pressure on the brain as the instrument by which that impairment is established.

Apoplexy and convulsions are at all times nearly allied in the condition of the brain, which produces them; and as both Dewees and Velpeau enumerate among the forms of puerperal convulsions the apoplectic and epileptic, it will not be irrelevant to our subject to make some remarks on the pathology of apoplexy.

Apoplexy has been ascribed to pressure on the brain, and some facts are known which favour the supposition.

1. I have read somewhere of a beggar who had been trephined; the brain in the spot operated on had no other protection than dura mater and scalp. When pressure by the hand was made on this yielding part of the head, insensibility ensued, with stertor and slow pulse; in short, he had the symptoms of apoplexy. On removal of pressure he returned to his usual condition.

2. Mr. Pott, and in later times Mr. Abernethy, have endeavoured to draw a distinction between the symptoms of concussion or commotion and compression of the brain, from external violence. Desault thought the diagnostics could not be relied on, and, I think, gave up the trephine entirely. 'Tis enough that there are two such conditions as those to which the terms concussion and compression are applied. Now, if a man falls or is stricken on the head, he is rendered insen-

sible and is stunned, but in a short time he recovers perfectly, or perhaps he dies, and no lesion is found to explain the occurrence. Such is concussion, a sudden impairment of the nervous centre, without previous disordered circulation or subsequent appreciable organic mischief. But in compression the trephine is applied, and effused blood is evacuated from an artificial cavity between the dura mater and bone. In some such instances the patient has aroused from his insensibility, and expressed his surprise at the surgeon and his operation. This would be a case of apoplexia traumatica.

3. A man is seized with apoplexy and dies in a few hours; on examination blood is found extravasated in the substance of the cerebrum: or he lives longer, and then dies, and the ventricles are surcharged with serum.

What is to be inferred from these several facts as to the causation of apoplexy? A hasty answer is, that they establish it to arise from pressure on the brain. But other cases have been noticed where neither coagulum nor serum was discovered effused, but in such the veins of the brain were greatly engorged by returning blood. A similar explanation is ready, here is pressure by venous congestion.

Venous congestion, or surplus quantity of blood in the vessels of the brain, seems to be a generally received solution of many disorders affecting the nervous functions of the body, but there is much obscurity and no little crudeness in the idea.

"It was a favourite *speculation* of the late Dr. Monro," says Mackintosh, "that the vessels of the brain cannot contain more blood at one time than at another." And this *speculation* is powerfully supported by the arguments advanced, under the modest and cautious title of "Conjectures in regard to the circulation in the brain," by Dr. Abercrombie. Mackintosh says, "certainly we are not entitled to conclude, from any known facts or experiments, that the brain must always, and under all circumstances, contain the same quantity of blood. Were Dr. Abercrombie's hypothesis correct, the circulation in the head, and consequently the functions of the brain, ought not to be materially affected by position in the case of syncope by bleeding. Syncope should not occur in the erect any more than in the horizontal posture. We favour the flow of blood to the head by the latter position, and do all we can to prevent its return, allowing the head, in severe cases, to hang lower than the rest of the body." I infer, from this, that Mackintosh attributes syncope to a diminished fulness, if not to an anemic condition of the vessels of the brain.

Bichat considers syncope to commence at the heart, whether occasioned by passions, by cardiac obstructions, or by losses of blood.

The giddiness, impaired vision, ringing in the ears, &c., which usher in syncope, are due to an enfeebled action of the heart on the circulation, whose velocity and force through the cerebral vessels are lessened, but the primary effect is on the heart itself. Now what is that effect? The current of blood arriving by the cava is suddenly diminished, and the heart experiences a deficiency of its accustomed stimulation. We wish to remove this syncope, and we lay the patient in the horizontal posture; why? that we may take off the influence of gravity on the column of blood in the ascending cava and its branches; the flow to the heart is accelerated and increased, the heart is more fully stimulated, the lost vigour of the circulation is restored through all the arteries, and consequently through those of the brain, and thus sense and sensibility are re-established and revived.

Those who contend with Mackintosh for the actual surplus existing in the brain, in consequence of increased momentum, are forced to claim compressibility among the properties of cerebral substance to meet the physical impossibility so clearly displayed by Abercrombie; for, if the brain be incompressible, the doctrine of accumulation has nothing to stand on. The cranium is a sphere of bone of definite capacity, which, for the sake of illustration, we will call 60; its interior is completely filled by its contents, consisting of solid cerebral substance, &c., (say 30,) and its circulating fluids (30.) Atmospheric pressure has no direct agency on the brain, because of the solidity, not to say figure, of the bony case which contains it, while it influences the whole soft periphery of the body and limbs, and consequently the fluids in their vessels. These are continuous, and communicate freely with the vessels in the interior of the skull, and this experiences the weight of the atmosphere indirectly through the arteries and veins which enter and make their exit at its base.

The volume of blood being distributed in three sets of channels, an increased quantity in one set must cause a decreased quantity in the others to preserve the physical equilibrium. If the amount in the arteries, and the inter-vascular channels which arise at their terminations, traverse the parenchyma, and end in the incipient radicles of the veins, be augmented by increased momentum of the blood towards them, this equilibrium cannot be preserved, unless the veins discharge into the jugulars and vertebrals an equivalent number. If the flow by the arteries be diminished by feebler impulse from the heart, the weight of the atmosphere will retard an equivalent volume in the sinuses, or rather in the veins emptying into them.

These reflections would seem to explain the experiments of Dr. Kellie, about which Mackintosh observes,—"the experiments of my

lamented friend, the late Dr. Kellie of Leith, and the mechanism of the skull show not, as Dr. Abercrombie supposes, that the quantity of blood in the vessels of the brain cannot be diminished, but rather how difficult it is to deplete the brain altogether, or so much so as to render it cognisable to our senses, even in animals purposely bled to death." Now, as Mackintosh does not contradict Abercrombie's version of the experiments themselves, we may take it for granted 'tis a true one as to facts. For this version, I beg leave to refer to Abercrombie on the Diseases of the Brain and Spinal Cord, p. 314, 1st American edition. That they do not show that there is a physical impossibility to diminish the blood in the whole vessels of the brain, as Mackintosh says, is more than I can conceive. They appear to me to admit of no other explanation than that which Abercrombie has given.

Now, during the last moments of life, the blood is distributed among the cerebral arteries, veins, and the channels leading from the one set of vessels to the other. Death occurs, the arteries perform their last contractions, and empty themselves by impelling the blood forward in its round; the veins, and perhaps the intervascular channels contain all the blood which was in the interior of the skull at the moment the heart ceased to pulsate, it being prevented from passing out by the jugulars, &c. by the weight of the atmosphere on the compressible parts of the body. If there have been cerebral hæmorrhage or serous accumulation, then, indeed, the veins are less filled, because such fullness is not required, the equilibrium being maintained by the effusion. If the skull be trepanned, and the pressure of the atmosphere be permitted to act directly on the interior of the skull, as on the compressible surfaces of the body, then depletion to death empties the cerebral vessels, and "the brain is drained of blood."

If, then, neither extravasation of blood nor accumulation of serum be present, and the venous congestion disclosed on dissection be a condition which did not produce the disease, (apoplexy,) but occurred in articulo mortis, as a necessary physical event, these are cases of this affection which present no appreciable lesion whatever on examination after death.*

*Whenever sanguineous extravasation or serous accumulation have failed to be found in examinations of the brain by morbid anatomists, from Morgagni down, they tell us that the veins of the brain were surcharged with blood, ergo, there was venous congestion before death, and what they seek for, viz. pressure; yet the emptiness of the arteries is equally common, and is a condition confessedly post mortem, or occurring in articulo mortis, and they might as well tell us that this emptiness of the arteries caused the disease, as that it arose from congestion in the veins, but that would not furnish them with pressure.

But "the brain is compressible, and, therefore, accumulations may occur by increased momentum," is the last shift of argument, to which the opponents of Monro's "speculation" are driven.

In order that the blood may circulate through the arteries of the brain, by pulsatory movement, it is at once admitted that a degree of compressibility is necessary. But that is enough for this object and no more, and is equalled by a corresponding resiliency, otherwise increase of momentum in the circulation, induced by any agent, would result in instant annihilation of the functions of the organ; for such momentum continued, would compress the cerebral substance beyond hope of recovery. If resilient and elastic, sufficient to preserve its very existence as an organ, the compressibility of the brain, in the degree admitted to exist, fails to countervail and explain away the physical impossibility insisted on by Abercrombie.

What, then, is the condition to which apoplexy should be referred?

The carotid and vertebral arteries are found entering the cavity at the base of the skull; their ramifications increase in number as they diminish in size, till they elude the efforts of microscopic research. The veins, commencing by radicles equally numerous and minute, coalesce till they enter the sinuses which make their exit from the head at a point similarly situated to the entrance of the trunks of the arteries. Boerhaave, Haller, Bichat, and others, considered that the channels which continued the flow of blood from the arteries to the veins, consisted of vascular tubes, to which have been given the name of capillaries. Broussais, referring to some observations by Fabrè, and repeated by Sarlandière, seems to come to the conclusion that a part, at least, of the ultimate circulation, is through the interstices among the organic molecules of the parenchyma, and extravascular. Both these opinions are founded on direct observation, and it is more than probable that there are channels between the arteries and veins, both capillary and interstitial. The sinuses of the brain are of firm structure, and permanently patulous in their course and at their terminations, and the veins which enter them are provided with valvular orifices, a construction calculated to ensure a free return of blood, and to preserve the physical equilibrium. The blood arrives through the arteries by the impulse of the contraction of the left ventricle of the heart, and a suction-power is exerted by the diastole of the right auricle on the column in the veins. In a normal state of the circulation the impulse by the arteries reaches a point in the capillaries, to which (or even beyond it) the suction-power in the veins extends. But the fluids in the interstitial or extravascular channels are beyond

and between that impulse and suction-power. In these channels, the blood has been observed under the microscope, to pass and repass under some influence independent of the action of the heart. With Broussais, let us say, this influence is due to vital chemistry. In the interstices of the parenchyma the blood changes from arterial to venous, and during these spontaneous movements, and concurrently with that change, the living action of the tissue and organ are performed. That these changes and actions may proceed with due vigour and perfection, it is necessary that the momentum of the blood derived from the heart's systole should not intrude on the domain of vital chemistry. Now, (in the brain,) unless there were provided some channels by which undue increased momentum could be transmitted to the venous conduits, damage to the functions, at least, of the organ, would ensue under the agency of the many causes capable of increasing that momentum. For this object the capillaries admit of some dilatation, by which such safe return out of the cranial cavity can be effected.

Now, a case occurs where this dilatation has reached its maximum, and, although there may be a surplus of blood in the capillary vessels, it must be at the expense of the volume in the veins, so that the whole blood in the brain remains the same. The domain of vital chemistry has been thus far unintruded on, and the functions of the brain have been healthfully performed. The momentum continues or is increased, the capillaries, the safety tubes, are embarrassed, and the momentum is forced to enter the province of interstitial circulation, and the result is absence of intelligence and sensation, and loss of command in the nervous centre of the system of relation over the locomotive apparatus; the pulse strong and vigorous—in other words, we have entonic apoplexy. The only condition in the chain of events, to which the term congestion can be applied, is the dilatation of the capillaries, which precedes and attends the catastrophe induced. But this can make no compression on the cerebral mass, because of the free exit of an equivalent volume of blood by the sinuses and veins, and it can be productive of no symptom of disease, for this dilatation is the true preservative office the capillaries proper have to perform. Beyond a certain degree of distention, however, it frequently happens that some of them give way, and cerebral hæmorrhage is the consequence. If the individual survive for a time, the case becomes complicated with hemiplegia, arising from an incident secondary to the condition which induced the apoplectic seizure. Or, in the absence of effusion, death may ensue by an injury to the brain, inappreciable to our senses

from the intensity of the interference of the great circulation on the living actions of the parenchyma.

A large majority of apoplectic attacks are imperfectly recovered from, as the sufferers are commonly advanced in life, and predisponent circumstances are likely to precede them. The effect of these is either to occasion habitual increase of the power of the heart, or to impair the tone of the ultimate structure of the brain, rendering the intrusion of arterial impulse on the domain of vital chemistry more intense, and diminishing the capacity of resistance in both the capillary and extravascular channels.

Besides the capillary and interstitial passages, there is a third termination of the ramusculi of the arteries, viz. the exhalents of the serous membrane. Amid the disturbances of the circulation, caused either by the predisposition to, or the attack of apoplexy, or by its sequelæ, increase of the natural habitus to serous accumulation, may present a greater or less amount of fluid in the ventricles of the brain. But this is found under such a variety of circumstances, and after the termination of other affections without cerebral symptoms, that the theory which assigned it as a cause of one form of apoplexy, has now but few advocates, and the term serous apoplexy has become obsolete.

There are also cases of deep coma, under great exhaustion, as from long continued discharges and hæmorrhages, or it supervenes more suddenly on enfeebled action of the heart, as in asphyxia. Here the arterial column of blood falls short of its accustomed goal. The suction power of the veins is diminished also, while atmospheric pressure on the body retards the blood in the latter vessels, and delay and remora obtain in the capillaries. The fluids of the interstitial channels fail to be duly renovated by the supply by the arteries, and to be removed by the veins, when effete and exhausted of their arterial qualities. The motions and changes of vital chemistry languish, in consequence, and the functions dependent on those motions and changes cease to be performed. Such cases, according to Abercrombie, come under the apoplexia ab inanitione of the old authors, and would now claim the appellation of coma, from exhaustion, secondary to the failure of the action of the heart. Serous accumulation may be found in cases of this kind, but cerebral hæmorrhage rarely, if ever.

Accumulation of blood in the vessels of the brain is also given as the cause of convulsions, although it is admitted that diminished impulse will sometimes induce them. In this respect it does not differ from apoplexy, if we permit the apoplexia ab inanitione to constitute one of the varieties of the latter disease.

Convulsions tend to, and frequently terminate in apoplexy, and the latter is sometimes ushered in by spasm and convulsive movements.

Although the physiognomy of the two affections presents a striking dissimilarity, there exists more consanguinity and parallelism in these phenomena than at first view might be allowed.

The main symptoms of apoplexy are suspension of intellect, suspension of sensation, suspension of the control of the brain over the voluntary muscles.

Those of convulsion, suspension of intellect, suspension of sensation, suspension of the control of the brain over the voluntary muscles, but without involuntary contraction of those muscles, alternated by relaxation.

Having arrived at the inference, that neither congestion nor diminished volume of blood can occur in the whole vessels of the brain, and that the dilatation of the capillaries, allowed to exist, previous to the intrusion of the arterial impulse on the province of interstitial circulation, cannot, per se, be productive of any symptom of disorder, or of any compression on the cerebral substance, and also that a supposed empty state of the blood-vessels of the brain, or syncope, is equally impossible, but that the coma of exhaustion is due to remora of the vital fluid, whose properties for renovation of structure and function have been exhausted under the vital chemistry of the parenchyma, I assign a similar disturbance of the circulation of the brain, as the cause of convulsions, which, when of greater intensity, gives place to apoplexy. Convulsions are paroxysmal, and a patient may experience repeated and numerous attacks without fatal injury, appreciable or inappreciable to the brain. There are intervals of quiet, nay, of apparent health. The muscular movements, or the chain of actions, which produce them, are, therefore, critical, and for a time at least, corrective of disturbance in the cerebral circulation, from which that chain commences. In the true epileptic, the period of immunity may be weeks, months, or years. In convulsion of accidental origin, minutes or hours are known to intervene. In both, the disturbance may be repeated at a given period, and the phenomena, of course, recur.

There is something in the epileptic individual, by which a less amount of disturbance in the circulation in the brain will produce a convulsion than what is required in others not predisposed to this disease. Cullen considered this to consist in "increased mobility," which he hardly pretends to be an explanation; it is, in fact, an expression without conveying a definite idea. I was going to call it, vox et preterea nihil! but I recall the sneer that phrase would contain,

as we have not advanced a single st p in the pathology or treatment of that opprobrium medicorum, beyond what was known when his star was in the ascendant.

Accidental convulsions arise from a disturbance of the interstitial circulation in the brain, similar to, but of less intensity than that which produces apoplexy; and this disturbance may depend upon increased or diminished momentum. It may supervene in many different affections; we see it in teething; from abdominal irritation; in the cold stage of ague, recurring with each paroxysm in the exacerbation of fever, common or specific; at the close of low fever with brain symptoms; from ardent spirits and other poisons; ushering in delirium tremens, and closing it in death; n concussion of the brain; and, lastly, in gestation and parturition.

Some have maintained that the convulsions of pregnancy and labour are peculiar to those processes, others that they are not. Parr endeavours to explain the complication by the pressure of the head of the fœtus on the great nerves passing out of the pelvis, and, among his means of cure, would administer opiate enemata in large doses, a practice not unworthy of the theory.

Upon the explanations I have essayed to make, let us inquire into the condition of the pregnant female. Almost all her general diseases are traceable to plethora. In the early months the impairment of the digestive function, which is considered favourable, when moderate, appears to indicate a design of nature, that a plethoric condition should not obtain. In the later periods that impairment wears off, when the greater evolution and growth of the fœtus becomes, if I may be allowed the expression, a diverticulum from the maternal system. Pregnant females, in good health, who emaciate, go through the process of parturition, ceteris paribus, better than others in whom plethora abounds. In the latter, parturition is apt to be less favourable; the getting up is more difficult and tedious, or diseases come on before or during confinement, requiring means of depletion, and, among others, puerperal convulsions are often to be apprehended.

Plethora, within certain bounds, and where the circulation is undisturbed, would most probably make deposition of additional particles in many tissues of the body; the adipose membrane would become loaded with fat. The heart and arteries may at any time take on excitement under the application of an exciting cause, attended by local inflammation in the structures or organs most predisposed to it; or hæmorrhages or other discharges may occur to bring matters to a medium; or entonic action of the circulation may cause determination of blood to the head, and this may happen the more readily towards

the end of pregnancy or during parturition, because of the pressure of the womb and its contents upon the arteries passing through the pelvis. Under this determination to the brain, the arteries first, and the capillaries after them, receive more than their quantum of blood, while the veins contain less. This state of things continuing or being aggravated, increased momentum intrudes upon the field of interstitial circulation, and the cerebral functions cease to be normally performed. If the tone of ultimate tissue of the brain be impaired, or the momentum be beyond a given degree, the system will be overwhelmed with apoplexy. But in a large majority of puerperal patients the parenchyma is healthy, or a smaller degree of disturbance gives rise to a minor injury, differing from apoplexy in the involuntary contraction and relaxation of the voluntary muscles, the chain of actions, which ends in the universal spasm resolving the state of the circulation from which that chain bears, and proving critical of the disturbance itself, at least for a time.

A certain relation between the materials elaborated for the wants of the system must be preserved to ensure that emaciation which marks a favourable gestation. In some instances this relation is not maintained, and the assimilating organs produce more materials than serve for the proper nutrition of the parent and fœtus, and more than the organs of waste can remove. Plethora ensues; there is for a time augmented deposition, the material system fills up, and the excess of nutrition over absorption continues. The circulation sympathises; increased momentum is added; pressure is made on the iliac arteries by the enlargement of the uterine tumour, or the passage of the fœtus through the pelvis, accidentally greater in one presentation than in another; determination to the brain is set up; derangement of due balance in the cerebral circulation ensues; the capillaries are distended; the arterial impulse enters the province of vital chemistry, and convulsion or apoplexy is the result.

Plethora alone is perhaps productive of but little manifestation by symptoms; but, combined with excitement in the heart and arteries, may evince the precursors of puerperal convulsions, viz. drowsiness, vertigo, headache, throbbing of the temples, flashes of light before the eyes, blindness, ringing in the ears, deafness, stammering, or inability of utterance, &c. &c., and these, or any of them, may be accompanied by a pulse strong, full, accelerated, or slower than natural, with flushing and tumidity of the face.

Many, sometimes all these, symptoms of premonition may be absent entirely, or they may be immediately precedent of convulsion, or they may be in so slight a degree as not to alarm either patient or accoucheur,

because the vital motions in the parenchyma of the brain may withstand and resist the interference of the arterial momentum, till its amount is such as to explode into the full-formed convulsive paroxysm. It would be fortunate for our patients, certainly for ourselves, if we could always recognise the precursors of the attack, so that we might foresee, and perhaps avert, the appalling incident which comes before us, in most cases unexpected.

Now, as convulsions in the pregnant and parturient female from increased momentum and determination of blood to the brain are far more frequent than those which arise from exhaustion, in the absence of precursory symptoms denoting their approach, we should regard the evidences of accruing plethora, if we wish to interpose preventive measures.

Both Burns and Blundell speak of inordinate œdema as dangerous, and requiring the lancet. The latter gives a case in which convulsion actually came on. According to Dr. Dewees, Dr. Lyman mentions "œdema and a remarkable slowness of pulse as premonitory of convulsions." Dr. D. has never noticed such precursors, and remarks: "Indeed it would seem that they (viz. women who are œdematous) should be less obnoxious to convulsions than others, as they are rarely so plethoric, and as the serous effusion seems to relieve the over fulness."

I respect every professional statement having to it the sanction of the name of Dr. Dewees, but must not shut my eyes to what has fallen under my own observation. In three of my patients the œdema was enormous, in a fourth it was said to have been considerable. I have visited, in consultation, two patients dying from puerperal convulsions, who were greatly swelled before confinement; and a seventh case is strong on my memory where a like condition preceded a fatal attack of the disease in one of my own female relatives.

But, besides this discrepancy of experience, the inferences to be arrived at, in my estimation, are directly opposite to those drawn by Dr. Dewees. Ordinary œdema of the lower extremities is reputed to be a favourable accompaniment to pregnancy, but not because it diminishes a plethoric state or marks its absence; it occurs in the latter months of gestation, clearly denoting its origin from pressure on the veins of the lower extremities, and is an evidence of due developement of the womb and its contents, the result of a healthful performance of the process.

But extensive œdema to an inordinate degree, and bloating the whole cellular tissue, arises, not from pressure, but from plethora. Now, it may lessen that over-fulness to a certain degree and for a

time, but the space for effusion is limited, and plethora may be increasing, and further effusion is an evidence that it is; and when this increase of œdema supervenes upon a full condition or habit of body, let the practitioner beware of convulsions.

In my third and sixth cases, the intelligence and elevation in society of the families in which they occurred, enabled me to obtain full histories of their previous condition, and presented in the clearest manner the coincidence of plethora and inordinate œdema. In the last case the enormous amount of serous effusion gave me great uneasiness, and I perhaps used too partial and inefficient means of prevention. Under similar circumstances, v.s. repeated, laxatives, reduction of diet, diminution of the time spent in sleep, moderate exercise gradually increased, might avert an impending attack of the disease.

Disarray of the balance of the circulation in the brain from enfeebled power in the heart, when induced slowly, is not likely to be productive of puerperal convulsions. Progressive wasting of the circulating mass will be compensated for by due contraction and accommodation of the general vascular system, containing it, to the change, and the cerebral vessels will be left free to preserve the normal distribution. Such contraction and accommodation, however, cannot occur where the waste has been sudden as well as great. Thus hæmorrhage, either before or after delivery, giving place to syncope verging to death, may so enfeeble the heart's power as to induce that form of convulsion or of coma, which arises from exhaustion. These will, in such case, be considered secondary events, and, if the case proves fatal, the patient will be said to have perished by flooding.

But, in a given case, convulsions have set in from determination of blood to the brain, arising from plethora. Free, full, but properly graduated, depletion is the main instrument of relief. If employed to excess, disordered distribution of blood among the cerebral vessels may ensue, and that which arose from too great impulse, now recurs from undue sluggishness of flow.

There is a law of the system, that of habit or association, under which affections, at least, of paroxysmal and periodical nature are observed to recur, from the impressions of an agent incapable in the first instance of inducing them. In illustration, take pertussis or intermittent fever.

In like manner, if syncope of moderate intensity and duration occur in gestation or labour from loss of blood, spontaneous, accidental, or therapeutic, where no convulsion had preceded, it may pass without danger of inviting a convulsive attack. But when such attack has come on from plethora and determination to the brain, and bleeding

has been carried beyond the amount required to the production of syncope, it is but too apt to induce the opposite disorder of the cerebral circulation, which may give rise to the same erratic train of phenomena as had been at first manifested by the systems and organs concerned in the disease. And, if the lancet has been used freely, but short of syncope, and after delivery there shall occur additional loss of blood, or, without such flooding, if exhaustion ensue from the termination of the process of parturition alone, as is sometimes the case, the convulsion may be repeated; and as the cases which result from exhaustion, whether primary or secondary, are less amenable to treatment than those of entonic origin, while the practitioner depletes to unload and control the circulation, he should take care not "to strike on Scylla when he endeavours to shun Charybdis."

I accord, then, with the magnates of obstetrical science, in the great importance of bleeding in the attack of puerperal convulsions of entonic origin. I would practice it, however, with a strict watch over the radial and carotid pulsations, as well as the stroke of the heart. My patient should keep a horizontal posture. I would draw blood at first freely, but slowly, and with intervals of interruption towards the last. The lancet is the grand remedy; there may be adjuvants; the cold dash to the head might be placed next to the lancet. Some have recommended secale cornutum. It might be given here where the parturient efforts were inefficient, and other circumstances did not forbid its use.

In my three patients who recovered, labour came on as soon as the excitement and determination to the brain were subdued by the depletion, and I regarded the return of labour pains as evidence of some mastery over the disease. Ergot was not needed, though, perhaps, I ought to except my fifth patient, for whom I used the forceps as a substitute. If prescribed, she would not have taken it, and very probably neither the forceps nor ergot were necessary.

In cases where the convulsions occurring after the commencement of labour have been subdued, and labour pains do not recur, I should certainly prefer the ergot, circumstances permitting its use, to pure artificial delivery, for of this I have seen enough to deter me from its repetition.

The fœtus being delivered, I would take great pains to ensure due contraction of the uterus, as preventive of hurtful sanguineous loss. I would enforce on the patient and her nurse that quietness from every exertion was of the highest importance; and finally, other circumstances being equal, she should be more guarded in her diet, and postpone her rising from bed to a later period than in ordinary uncomplicated parturition.

Art. VIII. *New views of certain Dislocations.* By Samuel Annan, M. D., of Baltimore.

Dislocation of the humerus into the axilla, although in many instances easily reduced by any of the plans recommended in the books, is occasionally exceedingly troublesome to the surgeon, and the force employed has in some instances been thought to have been the cause of the death of the patient. Sir A. Cooper dissected a case in which he found the pectoralis major slightly lacerated and blood effused; the supra spinatus lacerated in several places; the infra-spinatus and teres minor torn, as also some fibres of the deltoid and coraco-brachialis. The supra spinatus was most injured. This difficulty of reduction usually happens where the muscles have uncommon power, or where a considerable time has passed before well directed efforts are made.

The three indications to be remembered in the reduction of dislocations are the following, viz: to fix the socket immovably, or as nearly so as may be practicable; to relax the muscles as much as possible by a proper position of the limb, and to draw the head of the bone in the direction of the cavity from which it has escaped. The first is accomplished by judicious counter-extension; the two latter by extending the limb in the most advantageous manner.

The older surgeons applied a counter-extending band to the axilla, and passed it over the opposite shoulder; and to prevent pressure upon the pectoralis major, the latissimus dorsi, and teres major muscles, they put a large pad into the axilla, upon which, as they supposed, the band pressed. But it is obvious that the pad being forced in between these muscles, and the skin being thus drawn tight over their margins, they still sustained the counter-extending force; and these muscles being inserted into the humerus, the extending force was likewise applied to them by the band attached to the arm above the elbow. It was farther discovered that this plan only fixed the lower angle of the scapula, and even that very imperfectly; inasmuch as by the anterior superior angle being drawn outwards or in a lateral direction, while the inferior angle was drawn towards the spinous processes of the vertebræ, the position of the inferior costa was so much changed that the band did not catch upon it, and the consequence was that the scapula was drawn over its upper edge.

The modern plan is to fix the scapula by means of a band which allows the arm to pass through it. A girt, with two small straps buckled on the extreme point of the acromion process, so as to raise

the band high in the axilla; or a towel or handkerchief put round the arm, so as to catch on the extremity of the acromion, are employed. The same objection still applies; they all act on the pectoralis major, latissimus dorsi, and teres major muscles, subjecting them to both extension and counter-extension.

The extending force, in cases of more than ordinary difficulty, is applied by the compound pulley through a band attached to the arm above the elbow, and the limb is raised to a right angle with the trunk of the body, or a little above it, in order to relax the deltoid and supra spinatus muscles. By this application of force the head of the humerus is drawn out of the axilla from beneath the inferior margin of the glenoid cavity, and then by rotating the arm, by placing the knee in the axilla under the head of the bone and pressing it upwards, while at the same time the acromion is pressed downwards with the hands, the reduction is effected. The extending force draws the head of the humerus out of the axilla, and the subsequent manipulation is to restore it to its socket.

The muscles to be relaxed are the deltoid, coraco brachialis, supra and infra spinati. The limb being somewhat lengthened, they are made tense, and their disposition to resist extension is augmented. Now, although it is true that elevating the arm to a right angle with the body relaxes these muscles considerably, it does not effect this in the greatest possible degree. In some cases it has not been sufficient: and to overcome their resistance, force has been employed which has lacerated their fibres, and the patient, it was supposed, was destroyed.

The best plan of reducing this dislocation we believe to be to place the patient on his back on the floor, or on a bed or table. The floor is preferable, as the surgeon can apply the forces more conveniently. The surgeon should take a seat beyond the head of the patient, place his foot on the top of the shoulder, and, grasping the wrist, draw the arm towards him, which, if the patient was in the erect position, would be directly upwards. The foot pressing upon the spine of the scapula and the clavicle fixes the socket immovably, and thus we have the counter-extending force applied more advantageously than it can be by any other method, while the extending force draws the head of the bone from its situation below the glenoid cavity in the direction best calculated to restore it to the place from which it has escaped: and at the same time the point of the acromion process acts as a fulcrum to throw it out of the axilla, and afford it a favourable opportunity to slip over the projecting inferior margin of the glenoid cavity. The muscles too, which usually offer the most resistance, especially the deltoid and supra spinatus, are relaxed in the greatest possible

degree; and indeed to that extent that they make no resistance whatever. The supra spinatus, if it acts at all, will assist in drawing the displaced bone in the proper direction, for restoration to its natural position. Another advantage is, that counter-extension and extension are not both applied to any of the muscles. The force which fixes the scapula, being made to press upon the top of the shoulder, does not act upon any of the muscles concerned in the dislocation, and the only muscles upon which the extending force acts at all, and which will make some resistance, are the latissimus dorsi, and teres major, and the inferior margin of the pectoralis major, where it arises from the cartilages of the fifth, sixth, and seventh ribs, and the lower part of the sternum. The resistance of these is insignificant, compared with that of the deltoid and supra-spinatus, on the old plan, especially the latter, which is a muscle of prodigious power, and being drawn over the face of the glenoid cavity, where the humerus is dislocated downwards into the axilla, and attached to the outer tubercle, it binds the head of the bone against the inferior costa of the scapula, and under the lower margin of the glenoid cavity, and requires great force to overcome it, unless the arm is very much elevated. Sir A. Cooper, in a case which he dissected, where reduction had not been effected, found the action of this muscle to have been the great obstacle. It is believed that the above method fulfils all the indications. The socket is fixed, the muscles are relaxed, and the displaced bone is drawn towards the cavity from which it had been driven, while the opposing forces are so applied that the one does not counteract and neutralize the other in the slightest degree.

In all recent cases, and in many of considerable duration, we believe the power of the surgeon will alone be sufficient to effect reduction. In very old cases, where firm attachments have been formed, and where the compound pulley may be required, the scapula can be secured by a band passing from the top of the shoulder obliquely downwards to the opposite side of the body, which being fastened to a hook in the wall, or in a post, the pulley can be fixed to the arm in the usual way, and the extension made in a line nearly, although not altogether perpendicular to the trunk of the body, but sufficiently near to answer every purpose, except the advantage gained by employing the point of the acromion process as a fulcrum, to force the head of the humerus out of the axilla. This objection, however, may be avoided by passing the counter-extending band from the top of the shoulder, straight down the body, and thus carry it along between the legs to its place of fastening. Experiment alone can decide which

is the better direction of these two for the application of the counter-extending band.

On the above plan, we believe that dislocations of long standing may be reduced with entire safety to the patient. The principal danger, in very old cases, arises from the risk of injury to the blood-vessels or nerves. Two instances of rupture of the axillary artery, and death as the consequence, occurred to Dr. Gibson, Professor of Surgery in the University of Pennsylvania,* and examples of the same accident, as also of injury to the plexus of nerves, are related by M. Flaubert. In one of these last, the axillary nerves were found, upon dissection, to have been torn from the spinal marrow. Referring to these two unfortunate cases, Dr. Gibson informs us, that if another case should be presented to him, the following would be his decision:—"If the patient is young, not very muscular, the luxation not complicated with fracture—if no attempts have previously been made to accomplish the reduction, and the head of the bone has not been out of its natural situation beyond five or six weeks, I should advise the attempt to replace it. But, on the contrary, if the patient is very robust and vigorous, advanced in years, accustomed to labour and to the free use of ardent spirits, and the head of the bone has been long out, I should discountenance any attempt at reduction."† This advice would doubtless be correct, if rupture of the axillary artery or laceration of the nerves is probably to be the consequence. And indeed this is what we might rationally expect. A ball or roller of linen or muslin, forced in between the folds of the axilla, must press upon the blood-vessels, and thus subject them to counter-extension, as certainly as the extending power subjects them to extension; and it is exceedingly probable, if not absolutely certain, that they would be pressed against the head of the humerus. The blood-vessels, it is true, have considerable elasticity, but they cannot endure hard pulling in opposite directions. The wonder is that the vein was not also ruptured.‡ On Sir A. Cooper's plan of applying the counter-extending band, the folds of the axilla, formed by the pectoralis major, teres major, and latissimus dorsi muscles, receive the

* See this Journal, Vol. II., p. 136. † Ibid., p. 148.

‡ [The author is unjust to Professor Gibson in the above remarks. By referring to the account, by Dr. James C. Hall, of the post-mortem examination of the patient, it will be found that the axillary artery "was firmly attached to the substance of the bone and the articular capsule by dense cellular or ligamentous substance, *and such was the compactness of this junction, and so short the portion of artery between this point and that of its attachment to the rib, that it seemed absolutely impossible to reduce the bone to its place and not cause the rupture of the vessel.*" Vol. II., pp. 340, 341, of this Journal.—Ed.]

principal force of this part of the apparatus, and hence we find some of the fibres of these muscles occasionally lacerated; but the blood-vessels appear to escape. He does not say one word about injury of the axillary artery or vein. We should, nevertheless, be inclined to the opinion that they are not altogether free from danger when extraordinary violence is practised. On the plan we have ventured to recommend, the blood-vessels and nerves, it is conceived, are entirely exempt from danger. No pressure whatever is made on them, and they have to be stretched to so small an extent that their natural elasticity will easily allow them to yield as much as is requisite. We would, therefore, be willing to attempt reduction in cases of many months standing. Indeed, we would not hesitate to make the effort at any period when it might be supposed probable that the head of the humerus would remain in the glenoid cavity, provided it was restored to it. Whether the concavity of the socket is destroyed, in consequence of the long absence of the head of the humerus, we believe has not been ascertained; but if it should be, by supporting the arm with a sling or bandage, and preventing the head from falling in towards the side, by a ball in the axilla, the renewed pressure would, in all probability, speedily restore the glenoid cavity to its former shape, and allow of the original freedom of motion. In the present state of uncertainty as to the condition of the glenoid cavity, it is therefore impossible to fix any limits to the period at which reduction may be attempted with safety and success.

We have had but one opportunity for putting our views in practice. We were called to a case of dislocation of the humerus into the axilla, at which two or three skilful practitioners had been labouring for some considerable time, without effecting reduction, but not without subjecting the patient to great suffering. By placing the foot on the top of the shoulder, and drawing by the wrist in a line parallel to the trunk of the body, when erect, the limb was reduced in about five seconds, with scarcely perceptible pain to the patient. We have, however, heard of several cases in which the results were equally satisfactory.

That form of dislocation of the hip-joint, in which the head of the femur is thrown into the ischiatic notch, is admitted to be the most difficult of reduction of all the varieties of luxation to which this joint can be subjected. Sir A. Cooper informs us that it is the most difficult to detect as well as to reduce. "To detect, because the length of the limb differs but little, and its position is not so much changed as regards the knee and foot, as in the dislocation upwards. To reduce, because the head of the bone is placed deep behind the aceta-

bulum, and it therefore requires to be lifted over its edge, as well as to be drawn towards its socket." His mode of restoring the displaced bone is thus described. "The reduction of the dislocation in the ischiatic notch is generally extremely difficult, and is best effected in the following manner: the patient should be laid on a table upon his side, and a girt placed between the pudendum and the inner part of the thigh, to fix the pelvis. Then a wetted roller is to be applied around the knee, and the leather strap over it. A napkin is to be carried under the upper part of the thigh. The thigh bone is then brought across the middle of the other thigh, measuring from the pubes to the knee, and the extension is to be made with the pullies. Whilst this is conducting, an assistant pulls the napkin at the upper part of the thigh with one hand, and rests the other upon the brim of the pelvis, and thus lifts the bone as it is drawn towards the acetabulum over its lip. For the napkin, I have seen a round towel very conveniently substituted, and this was carried under the upper part of the thigh, and over the shoulders of an assistant who then rested both his hands on the pelvis, as he raised his body and lifted the thigh." He has also tried the following method with success. "Extension was made by pullies in a right line with the body, and, at the same time, the trochanter major was thrust forward with the hand, and the bone returned in about two minutes into its socket, with a violent snap."

The first of these plans, by throwing the dislocated limb across the middle of the other thigh, in order to draw the head of the bone towards the acetabulum, it being situated behind, and a little above that cavity, when the dislocation is into the upper notch, which is the most common, has the effect of drawing the counter-extending band entirely off the pelvis, and consequently brings it into that position in which it presses altogether upon the inner and upper part of the thigh; and the muscles there, which are amongst those to be extended, are subjected to the whole of the counter-extending force; and thus the whole of the power employed draws these muscles in two opposite directions. It is owing to this, that so much trouble has been experienced in the reduction of this dislocation. If the pelvis could be secured, so that the counter-extending band would not act on the muscles to be extended, there would be comparatively little difficulty; but this cannot be done, if an effort is made to move the head of the femur directly towards the acetabulum, by this mode of applying extending power.

The second plan is superior to the first in all cases of luxation into the upper notch, if lateral extension is made with a round towel over

the shoulders of an assistant. The pelvis is secured without pressure upon the muscles to be extended, except just at their origins, which will not perceptibly counteract the extending force; the head of the femur is drawn down opposite to the acetabulum; and if no more longitudinal extension is employed than is sufficient to effect this, and it is then discontinued, the lateral extension should replace the bone very readily.

Neither of these plans, however, is adapted to that form of dislocation in which the head of the femur is thrown upon the lower ischiatic notch, and the limb, in consequence, considerably lengthened. It is true, this is the less frequent form of the injury, but it occasionally occurs; and we shall refer to a case of it before we conclude this article. When the limb is two or three inches longer than natural, it is obvious that longitudinal extension can only draw the head of the femur farther from the acetabulum. In these cases, lateral extension and pushing the limb upwards, are required to cause the displaced head to move towards its socket. It is here that the plan to be proposed is peculiarly applicable; and it is believed, that with slight modification, it will suit the dislocation into the upper notch.

The principle of our method is the same with that recommended by Sir A. Cooper, for dislocation into the foramen ovale, viz. lateral extension to the exclusion of longitudinal. The patient should be laid upon his face on a table; the pelvis secured by a band passing round it, and going off laterally from the sound side to be fastened to a post or a ring fixed in the wall; another band should be put round the upper part of the thigh of the injured limb, which should be given to the assistants, who are to make the extension, or have the compound pulley fastened to it, if it is to be employed. If the limb is lengthened, the bands should be so adjusted that the extension can be made a little upwards as well as laterally, which will move the head of the bone in a direct line towards the acetabulum, and by a gentle rotation outwards it will be replaced. Sometimes it may also be necessary to push the limb upwards.

When the limb is shortened, which happens where the luxation is into the upper notch, the apparatus should be adjusted in the same general manner; but the bands, instead of being directed downwards and upwards, should pass off from the body at right angles with the trunk, and the extending band should only be tightened so as to act as a fulcrum upon the upper part of the thigh. The ankle of the dislocated limb should then be taken hold of, and be drawn over the sound limb, which will force the head of the bone out of the notch, and make it describe the segment of a circle, and pass a little down-

wards in the direction of the acetabulum, and thus be speedily replaced. Care must be taken that the extending band is sufficiently tightened, and also that it does not yield, otherwise the drawing of the leg across the other will only move the head of the bone in the notch, as if it was a joint. If lateral extension only was employed in this case, the head of the femur would be drawn out of the notch; but it would be upon the dorsum of the ilium, above the acetabulum. Whereas, by simply drawing the limb laterally as much as is required to make the extending band serve as a fulcrum, and then using the leg as a lever, the head of the bone is not only forced laterally, but moves downwards, and must necessarily pass into its socket.

Besides fulfilling the two general indications of fixing the socket, and causing the head of the displaced bone to move towards its natural cavity, (there are no muscles that require to be particularly relaxed,) if the pelvis is examined, it will be found that instead of its being necessary to raise the head of the femur *up over* the edges of the acetabulum, there is a continued descent along an even surface, thus affording the greatest possible facility for reduction. It is very apparent, too, that when longitudinal extension is made, it must be much more difficult to move the bone laterally than where it is dispensed with. A string tightly stretched between two fixed points, cannot be moved laterally as easily as one that is slack. This we believe to have been one of the sources of difficulty attending the old modes of reduction. Longitudinal and lateral extension were attempted at the same time.

Dr. Warren, of Boston, has reported an interesting case of dislocation of the hip joint, with lengthening of the limb, upon which we shall make a few remarks. "The thigh was bent forward, so as to form a considerable angle with the body, the limb was longer than the other by about three inches, and the head of the femur was behind the articulating cavity," thus forming a dislocation downwards and backwards. Sir A. Cooper questions the possibility of the occurrence of a luxation of this description, and is inclined to believe that some anatomical error must have originated the opinion that the limb is at any time lengthened in the dislocation backwards, inasmuch as the head of the bone is described as being received into the ischiatic notch, "but this notch is in the natural position of the pelvis, above the level of the line drawn through the middle of the acetabulum, and hence it is that the leg is shorter, not longer, when the bone is dislocated into the ischiatic notch." Boyer says, "he does not think that the femur can ever be luxated downward and backward; but it may be carried in that direction after a luxation upward and outward; that

is to say, the head of the femur thrown, in the first instance, upon the external iliac fossa, may, if the thigh be afterwards abducted from any cause whatever, slip down before the upper part of the ischiatic notch, but it can never reach the junction of the ilium and ischium."

Boyer here falls into the anatomical error to which Mr. Cooper refers; he believes that the head of the femur can be forced only into the *upper* part of the ischiatic notch, and that only consecutively; and he calls this a luxation "downwards and backwards."

Dr. Warren's case proves that Mr. Cooper and Baron Boyer are both mistaken in supposing that the head of the femur cannot be driven downwards and backwards upon the lower part of the notch—or rather upon the smaller notch, formed below the short sacro-sciatic ligament, which passes from the spinous process of the ischium to the sacrum. Indeed there is no reason why the head of the femur may not be dislocated at any point of the circle of the acetabulum, if the force is applied in the proper direction; and lodge upon any flat or hollow surface sufficiently extensive to receive and retain it.

Dr. Warren appears to have supposed that the head of the dislocated bone lay upon the spinous process of the ischium, and the short sacro-sciatic ligament. Taking the lengthening of the limb into consideration, "about three inches," we should rather think it must have been lodged in the inferior or smaller notch between the two ligaments, the long and short sacro-sciatic. The spinous process is but little below the level of the centre of the acetabulum. The thigh was bent forwards by the tension of the psoas magnus and iliacus internus muscles.

In the attempt made to reduce the dislocation, both longitudinal and lateral extension were employed. It seems strange that when the limb was already three inches longer than the other it should have been thought necessary to lengthen it still more. The reason assigned is, that it was thought the head of the bone was hitched against something, or engaged somewhere. An examination of the parts concerned, will show us that this is impossible, so as to offer any considerable obstacle to reduction. In moving towards the acetabulum, it has a smooth, and, with the patient on his face, a descending surface to traverse, or with the patient lying on his side, an ascending. We believe that, if Dr. Warren had broken up the attachments in the first place, laid his patient on his face, and applied lateral extension, and at the same time drawn or pushed the limb upwards, in the direction of the articular cavity, he would have succeeded in accomplishing the reduction. It was one of those cases in which the danger from rough handling is least, and for the following reasons:

Sir A. Cooper has given it as his opinion, that it is imprudent to attempt to reduce a dislocated hip-joint longer than eight weeks after the accident. We are disposed to think, that in relation to this point, a distinction should be made between those luxations of the hip, in which the limb is shortened, and those in which it is lengthened. In the former, so much force would be required to elongate the numerous strong muscles passing from the pelvis to the leg, that excessive irritation must ensue. The stretching of the arteries, veins, and nerves, after remaining so long in a contracted state, is full of danger. The case is different in the dislocation into the foramen ovale; and likewise in those into the ischiatic notches, upper and lower, on our plan of reduction. Only a few small muscles require to be greatly stretched; and the laceration of some of their fibres would most likely not be followed by injurious effects. Of this, however, we do not think there is ground for apprehension in any case, except where the muscles are subjected to both extension and counter-extension. In these latter cases, also, of hip dislocation, no blood-vessels nor nerves of any magnitude can possibly be injured. Dr. Warren, we therefore think, would have been justified in attempting reduction, although about three months had elapsed, if he had omitted the longitudinal extension.

With respect to the question suggested by Baron Boyer, whether dislocation into the ischiatic notch is primary or secondary, we think it may easily be made consecutive from a primary one on the dorsum ilii, if the requisite force is applied in the proper direction, to drive the head of the femur into the upper notch; but we have great doubt whether the muscles alone, the pysiformis, gemelli, and obturatores will alone accomplish this change of position, although we will not assert this to be impossible. It is, however, perfectly plain, that a consecutive luxation into the lower notch, with a lengthening of the limb to the amount of two or three inches, is never likely to happen from the employment of injudicious means to effect reduction of a luxation either upon the dorsum ilii or into the upper notch. No man of common sense would extend the limb to that degree by means of longitudinal extending force, and it never could occur from any motions of abduction or adduction, inasmuch as such motions simply move the head of the bone in its new situation, as if it were a joint. Consecutive luxation may, nevertheless, occur into the lower notch, from a primary one into the foramen ovale. Sir A. Cooper relates a case in which this accident happened, and informs us that reduction from the new situation was found to be impossible; and he lays it down as a general principle, that these consecutive luxations cannot

be reduced. It is caused by the surgeon injudiciously advancing the leg, instead of depressing it. If the relative position of the foramen ovale and the acetabulum is examined, it will be seen, that with the patient lying on his back, in using the limb as a lever, it should be drawn behind the opposite leg. Neither should the limb be too much depressed, or the surgeon may produce a dislocation on the body of the pubes. In passing into the ischiatic notch from the foramen ovale, the head of the femur traverses the space between the inferior margin of the acetabulum, and the tuberosity of the ischium, tearing up the obturator internus and gemelli muscles, and the head of the bone is directed downwards, below the spinous process of the ischium, into the lower notch, by the limb being used as a lever, and drawn over the opposite leg.

We must be permitted to say that Mr. Cooper has been rash, in asserting it to be impossible to reduce this form of consecutive dislocation. If such a case should be presented to us, we would turn the patient over on his face, and restore the head of the femur to the foramen ovale by lateral extension, and take care, on the next attempt, to depress the limb so as to direct it into the acetabulum. This, we believe, would be found to be easier than reduction as a primary luxation, the muscles and capsular ligament being already separated from their attachments along this route.

In conclusion, we beg leave to say that the foregoing views have been taught publicly since 1827, and the substance of them was published in 1830.

Remarks on the preceding paper, by the Editor.

Without entering into any discussion, relative to the merits of the plan of reducing dislocations of the humerus, recommended by our correspondent, it may be proper to state that its claims to novelty at least, cannot be sustained. Mr. Charles White of Manchester has recorded in the *Medical Observations and Inquiries*, vol. ii. p. 373, (London, 1764,) two cases of luxation of the humerus, reduced by what he terms "a new method." This consisted in fixing one end of a set of pullies to a staple in the ceiling, and the other to a ligature fixed about the wrist of the dislocated arm, placing the arm in an erect position, or parallel to the axis of the body. In this manner the patient was drawn up until his whole body was suspended! This plan has been since employed by various surgeons, and our venerable and

esteemed colleague, Dr. Physick, informs us that he saw it tried in the Pennsylvania Hospital, about the year 1784, but without success.

The method of Dr. Annan, though in some respects similar to that of Mr. White, is certainly not identical with it, and possesses the positive merit of embracing a means of fixing the scapula. This we conceive to be a point of the greatest importance, but unfortunately for our correspondent, he has been anticipated by M. Mothe, who, a quarter of a century ago, recommended the application of the counter-extending force to the same part, and the precise means of applying it, advised by Dr. A. (*Mélanges de Médecine et de Chirurgie.* Paris, 1812.)

By one of the methods of Mothe, (for he recommends two,) the patient is laid on a low bed, near its edge, with the dislocated arm on the outer side. The surgeon seated on a low chair above the patient's head, seizes the dislocated arm, draws it upwards in a line parallel to the axis of the body, whilst at the same time he fixes the scapula with his foot placed upon the acromion process.

This plan, it will at once be perceived, is identical with that of our correspondent.

The other method recommended by Mothe, varies in some of the details, but we need not describe them or the modifications proposed by Rust and Kluge. Those who are curious on the subject, are referred, in addition to the works already noticed, to Broomfield's Chirurgical Observations; Charles Bell's Operative Surgery; Monteggia, Institutioni Chirurgische; Rust, Magazin der gesammte Heilkunde, bd. i. heft i. p. 74, and bd. x. p. 184; Busch, Diss. de Luxat. Humeri, Berol, 1817; Leonhardt, Diss. de Methodo Mothiana Humer. Luxat. Reponendi. Berol, 1820; A. L. Richter, Lehrbuch von den Bruchen und Verrenkungen der Knochen. Berlin, 1833, p. 362, pl. viii. figs. 2 and 3, &c.

It may not be considered irrelevant to the object of the preceding remarks to observe, that the difficulty occasionally experienced in reducing dislocations of the humerus, has generally arisen from the neglect of proper means for fixing the scapula; and that the merit of devising the best plan for the accomplishment of this object is due to the patriarch of American Surgery, Dr. Physick. His plan consists in applying the heel of the hand, either of the surgeon or of an assistant, to the acromion process of the scapula. It was devised by Dr. Physick nearly half a century ago, when he was a student of medicine, and was first put in practice by him in the year 1790, in the case of a patient admitted into St. George's Hospital, London, when Dr. P. was house pupil in that institution. Dr. P. subsequently taught this

method in his lectures, and it is described in the Elements of Surgery, by Dr. Dorsey, (nephew of Dr. Physick,) published in 1813. As this work may not be accessible to our foreign readers, we transcribe the description of the plan.

"It consists in making counter-extension against the acromion process of the scapula, and extension by the arm above the elbow, the fore-arm being flexed.

"If the surgeon is called soon after the accident has happened, he is to press firmly with one hand against the acromion, and with his other grasping the arm above the elbow, forcibly to extend it, the patient being seated. In a great number of instances I have known this simple manœuvre to succeed instantly in reducing the bone, the strength of an individual being sufficient for the purpose.

"If a greater length of time have elapsed, the extension and counter-extension are to be made in the same manner, but with additional power. Several assistants being employed, to make counter-extension against the acromion, by placing one hand over another, and an equal number to make extension.

"When the force required is greater than can be thus applied, a girth or strong band covered with soft buckskin may be passed over the shoulder for counter-extension, and this can be held by assistants, or secured to a staple fastened in a wall; in order to prevent it from slipping, I have made use of two strips of muslin, one on each side of the shoulder, which are passed round the band, and held down by an assistant. To make extension, a piece of soft buckskin is applied round the arm above the elbow, and a strong towel is fastened upon this by very numerous turns of a muslin roller passed round and round the arm; to this towel, cords or bands may be attached, and any number of assistants can act upon them, or if pullies be necessary these can be affixed.

"The advantage derived from the mode of applying force, which has just been recommended, is, that it acts almost exclusively upon the shoulder joint. When the patient is secured by straps, bandages, or jackets about the thorax, the scapula moves with the humerus when this is pulled, and it would probably be possible to drag off the scapula and clavicle together with the arm, without reducing the luxation. The mode of treating the accident, by placing the heel in the axilla, and pulling at the arm, is a better plan, for in this case some of the counter-extension *is* borne by the scapula, and this has often been successful, but among the numerous methods which ingenuity has devised to aid in the reduction of a luxated humerus, I know of none which so completely and exclusively operates upon the affected part, and none which can succeed more happily than that which I have described.*

This same plan has recently been described by Mr. Toogood, senior surgeon of the Bridgewater Infirmary, (*Transactions of the Provincial Medical and Surgical Association*, vol. i. p. 275, London, 1836,) who does not seem to be aware of its being an established method, at

*Mr. Freke, Benjamin Bell, Charles Bell, and other writers, recommend securing the scapula, but not in the manner here directed.

least in this country. We attach so much value to it, that we are happy to support our estimate of it by so respectable an authority.

Mr. T. describes his method as follows: "Having seated the patient on a low chair or stool, firmly secured the body and fixed the pulley, I stand over him, and place the heel of my right hand on the acromion, leaning my weight on my hand: by this means the scapula is fixed and rendered immovable, the extension is then made, and the reduction quickly completed."

Mr. T. says, that by this simple method he has never failed in reducing dislocations of the humerus, even in cases where the head of the bone has been thrown into the most unfavourable position.

"I lately," he remarks, "had a case in one of the most muscular men I ever saw, who, having met with a similar accident on a former occasion, dreaded, and with good reason, any attempt at reduction, and declared that he would allow one trial only to be made, and that if it did not succeed, he would be content to let the limb remain unreduced; for that on the occasion alluded to he had submitted to the efforts of four surgeons and a physician, with sixteen assistants, for three days, and that at length, after bleeding and other remedies, he became perfectly exhausted, when the bone was replaced.

"Notwithstanding the head of the bone lay under the pectoral muscle, the whole operation, performed in the manner described, did not occupy two minutes. So satisfied, indeed, do I feel of the great importance of this point, that I do not hesitate to say that all dislocations of the shoulder may be speedily and easily reduced, by fixing the scapula in this manner, without any bandage whatever."

We have been equally successful in our own applications of this method, and are convinced that experience will justify Mr. T.'s commendation of it.

Art. IX. *Laceration of the Urethra from a fall on the Perinæum, with consequent retention of Urine, for which the operation of puncturing the bladder was performed.* By Thomas F. Betton, M. D.

The rarity of the following case, and the conflicting opinions of many distinguished surgeons, as to the propriety of the operation selected for its relief, have induced me to present it to the medical

public. Without the most remote wish to presume to decide on so important a question, the case with all the facts, as they occurred, shall be given. It is not my desire to write a paper, but merely to state the case candidly, and with the view to elicit further information on this, to me, an exceedingly interesting topic.

Case.—On the 28th of October, 1834, Mr. H. R. fell from a ladder directly astride of a cart-wheel, through a space of four or five feet. The accident happened between 10 and 11 o'clock, A. M. I was sent for that night at 12 o'clock to see him in conjunction with his attending physician, Dr. Shelmerdine. He was then labouring under all the symptoms of retention of urine. The introduction of the catheter had been fruitlessly attempted, previously to my arrival; and his physician had used in vain all the means usual in such cases, as a warm bath, fomentations to the abdomen and perinæum, leeches to the perinæum, anodyne enemata, etc. From the nature of the accident, and subsequent symptoms, laceration of the membranous portion of the urethra was to be suspected, and such indeed proved to be the case. On attempting to introduce the catheter, the peculiar feel indicating that accident, was plainly distinguishable. There was a peculiar sensation, as if the end of the instrument had passed over a piece of tense cat-gut, which was easily perceptible, but which I am at a loss to compare with any thing analogous. The perinæum was much bruised and ecchymosed, and the patient, as might be expected, greatly distressed.

29*th*. 9 o'clock, patient more distressed than at our previous visit, in consequence of the distension of the bladder, the fundus of which had ascended as high as the umbilicus. As all our endeavours had proved unavailing, nothing remained but to evacuate the water contained in the bladder by some artificial means. Further advice was obtained, and the operation above the pubes being decided upon, it was performed at one o'clock of the same day, twenty-six hours after the accident.

It was done in the following manner:—having previously shaved the pubes, I made an incision in the abdominal parietes of about an inch in length, the base of which rested on the symphysis pubis, passing between the pyramidal muscles, it extended to the fascia lining the abdomen. As is well known to the anatomist, a portion of the bladder is not invested by peritoneum, and by keeping the trocar as close as possible to the pubes, and directing it towards the axis of the viscus, the peritoneum is not in danger of being wounded, when the bladder is much distended. These rules were observed in the

present case, and a female silver catheter left in the aperture. The patient was greatly relieved.

30*th.* Patient easy. Ordered minute portions of calomel, rhubarb and opium, with mucilaginous drinks. Urine flows freely by the catheter.

31*st.* Some tenderness of abdomen; 100 leeches were ordered to be applied. Continue remedy.

November 1*st.* From some exertions made during the night, to our great regret, the catheter slipped out, despite of its tapes. The wound in the bladder had healed, and it was necessary to puncture it again, which was done at half-past 12, P. M., to his great relief.

2*nd.* Seems easier, but has some fever; gave him a very weak solution of sulph. magnes. cum. vin. antimon. et spts. æther. nit.

3*d.* The solution has acted on the bowels. Discontinue and substitute neutral mixture.

4*th.* Succeeded in passing the catheter without any difficulty by the natural passage, very much to my satisfaction, as it affords me some hope of the patient's life, although his situation has suddenly become, since yesterday, much more dangerous. The catheter in the artificial opening was removed, and the orifice closed. No infiltration into the cellular tissue of the abdominal parietes had taken place; the irritation of the urine had excited adhesive inflammation, and thereby condensed the sides of the incision, so as to form a canal, which, but for the closing of the orifice in the bladder, would have required no canula. His strength is sinking, and he was ordered milk punch with chicken water. His spirits also seem depressed, and I fear his recovery is hopeless. In fact, on my visiting him next morning, after a lapse of about fifteen hours, he was no more. His skilful and attentive physician, who had visited him very late at night, and did not live very far from him, informed me that he appeared to have died from mere exhaustion and debility, added to anxiety of mind. Stimuli were freely administered, but they were productive of no good.

Autopsy.—The membranous portion of the urethra was found lacerated for about the space of two and a half inches, a great deal of blood effused in the cellular tissue of the perinæum. The wounds in the bladder had healed entirely, and that viscus, throughout, was perfectly sound. The peritoneum and intestines very carefully and minutely examined, evinced not the slightest mark of disease, so that we could find no apparent cause for his death, save the general shock to a man whose mind was naturally active and anxious. The morbid specimen is in my possession, and it will gratify me to show it to any one desirous of examining it.

A case precisely similar to the above in every particular, except the attempt to tap the bladder from the rectum, is related in Dr. Parrish's Surgical Observations, p. 245, and had great influence in inducing me to venture to publish the one occurring under my own notice. That the accident is not of frequent occurrence must be evident, from the circumstance of its having occurred only twice in this vicinity, during the lapse of many years; at least I have been able to meet with but one on record,—that published by Dr. Parrish. In the case of Mr. R. no attempt was made to tap the bladder by the rectum, as it was deemed most advisable to perform that operation above the pubes. This operation, if carefully done, can be productive of no ill consequences; the peritoneum is not liable to be wounded, if the bladder, as it must be to render the operation urgent, be exceedingly distended with water: the operation is performed in a sound portion of the viscus, the irritation of the urine excites adhesive inflammation in, and condenses the cellular tissue of the abdominal parietes, forming the track of the canula, and no risk of infiltration is incurred. Care must be taken that the canula be neither too long nor too short, but a caution of this kind it is unnecessary to make here, as it must arise naturally in the mind of every surgeon. The wound heals very readily, and the chances of a fistulous opening being left are very few. Delay in such cases is dangerous, and we should never allow ourselves afterwards to regret that the operation had not been performed sooner.

Observations on the preceding case, by the Editor.

Rupture of the urethra from external injury, of which the preceding case affords an interesting example, though by no means of very rare occurrence, has been either entirely overlooked by authors of systematic treatises on surgery, or so cursorily noticed, as to furnish the practitioner with but few principles to guide him in the management of the accident. A brief sketch, therefore, of its principal features, and of the best method of treating it, may not prove unacceptable to our readers, and may, perhaps, aid in saving them from the mortification of failure in their efforts to afford relief, and their patients from unnecessary suffering and even loss of life.

The most frequent *causes* of the accident in question are, falls astride some firm body, as a bar, edge of a boat, pommel of a saddle, &c., a kick on the perinæum, injuries of the pelvis, &c.

The immediate *consequences* are, severe pain in, and effusion of

blood into the perinæum, producing usually tumefaction of this part, and sometimes profuse hæmorrhage through the urethra. A catheter cautiously introduced into the canal just named, when it reaches the seat of rupture, gives the surgeon the impression of its being out of the canal, for its point is wholly unsupported and falls from side to side. On withdrawing the catheter or stilet a fresh hæmorrhage generally ensues. If the solution of continuity be complete, and sometimes even when partial, great difficulty may be experienced in conveying a catheter into the bladder, and in some cases this will be impossible. After the lapse of some time, the patient experiences an urgent desire, with inability to pass his urine, and this fluid either escapes by the breach in the urethra, and insinuates itself into the cellular tissue of the perinæum and scrotum, enormously distending these parts and causing them to slough, if proper means of relief be not adopted, or there is an absolute retention of urine, the bladder becomes visibly and painfully distended, and if this organ is not emptied by the introduction of the catheter or by puncture, it ulcerates or sloughs, the urine is effused into the peritonæum, or perinæum and scrotum, constitutional symptoms manifest themselves, and the patient dies after great suffering.

The *treatment* of these cases seems to us very obvious. When the catheter can be introduced into the bladder, this should be done.* Venesection, leeches, the warm bath, poultices, saturnine lotions, and *rest*, will then generally complete the cure. But if the perinæum and scrotum be much distended with blood, it is generally most prudent to make a *free* incision into the former part to evacuate this fluid, and if there be also infiltration of urine, this operation will be always necessary.

Where much difficulty is experienced in introducing the catheter into the bladder, the attempt should not be persevered in, by which the injury is often increased, without the object being attained; but a free opening must be made into the perinæum, by which a ready exit for the urine, blood, and matter is at once secured, and an extension of the mischief prevented. It is justly remarked by Mr. Earle that, "in many of these cases, where there is no external wound, and where the patient is ignorant of the nature of the injury, and the

* Dr. Macfarlane states that when the laceration of the urethra is not so extensive as immediately to give rise to extravasation, he has succeeded in preventing it in two cases, by introducing a large elastic catheter into the bladder and retaining it for several days, until the danger was warded off by the sides of the lacerated opening becoming consolidated.—(*Clinical Reports*, p. 139.) Where there is little or no extravasation of blood this will no doubt be sufficient.

danger to be apprehended, it is often difficult to persuade him or his friends of the necessity for such an operation. Much decision and firmness are required on the part of the surgeon, who should act at once, or he may be too late to prevent extensive or even fatal effusion of urine. No possible danger is to be apprehended from the performance of the operation, which places the patient in a state of security, and enables nature to set about her process of reparation. The wounds always heal readily, if properly treated, and the external incision be of sufficient extent."—*Lond. Med. and Phys. Journ.* April, 1828, p. 317.

The operation is best performed by placing the patient on a table in the same position as for lithotomy. An incision should be made along the line of the raphé of the perinæum, and the coagulated blood removed. A catheter introduced through the glans penis may then be passed into the bladder, the urine evacuated, and the instrument fixed in its situation by a T bandage. Simple dressings are to be applied to the wound, which usually heals without difficulty, and the canal is restored.

This operation is far preferable to the puncture of the bladder, either above the pubis or from the rectum. The latter is, indeed, often impracticable in these cases, as is fully exemplified by a case presently to be related, and it should never be attempted. The former, though much less objectionable than the latter, is attended with more danger than that we have recommended, and is calculated only to relieve *one* of the consequences of the injury without directly contributing to its cure; and in many cases would not supersede the necessity for a free incision into the perinæum.

These observations will be illustrated by the following cases:

Case I. The subject of this was a man 25 years of age, who received a violent contusion in the perinæum, by falling with his thighs separated upon the end of the axletree of a carriage. The severe pain which he felt, did not at first prevent him from continuing his work, but he soon had retention of urine, and in a little while there appeared at the bruised spot a tumour, which increased rapidly. The swelling extended to the penis and scrotum, and this last was swelled so considerably that, in the evening, it acquired the size of an adult's head, and was already of a black colour. In this state the patient was admitted into the Hotel Dieu, 10th Jan., 1790. As he had not made water since morning, and as he suffered much, the bladder was first emptied by means of a catheter, which passed easily, and which was withdrawn after the operation. Dessault then made an incision from the left side of the anterior part of the scrotum along the perinæum to the spot where the urethra was ruptured, and which left naked the vaginal coat of the left testicle. The cellular tissue was found infiltrated with urine, and there was much coagulated blood along the canal of the urethra. This incision afforded much relief. Mild dressings were applied to the wound. The urine at first flowed through the incision in the perinæum; on the sixth day a few drops passed through the urethra. The wound gradually healed, so that on the 29th day the urine principally passed through the urethra. The cicatrix, however, contracted this canal, and it was necessary to dilate it by the introduction of a catheter.

The urine ceased to flow through the artificial opening on the 58th day, and the patient left the hospital cured on the 85th day.—*Dessault's Surgery*, Vol. II.

Case II. "A man twenty years of age, fell from a height across a ladder upon the perinæum. Much swelling and tension of the parts from the anus to the scrotum succeeded, with great discoloration. Leeches were applied, and the bleeding encouraged by warm fomentations; after which a poultice was employed, and a saline purgative given, which operated largely during the day. In the evening he took an opiate draught with tartarised antimony, which procured alleviation of his pain, and produced some sleep. The next day he had much tension of the abdomen, and was unable to void his urine. The catheter was introduced without much difficulty, and a large quantity of urine clear and untinged with blood drawn off, and the operation was repeated as often as the patient expressed much uneasiness from distension of the bladder. A similar plan was pursued with little variation for seven or eight days, during which the symptoms were not materially arrested. The discoloration at this time had extended to the scrotum and penis, which were almost buried in the swelling, and which had now become somewhat œdematous. In the night of the eighth day, during a pressing effort to make water, he was seized with a pain of a much more acute kind than what he had before experienced, and on attempting to pass a catheter it met with considerable resistance, and could not now be got into the bladder as usual.

"Unavailing attempts were again made to introduce catheters of different sizes and curves, but the obstacle could not be surmounted. The point of the instrument seemed, when it had arrived a little beyond the bulbous part of the urethra, to quit the canal and get into a pouch on the left side of the raphé.

"The man's health was now becoming much disordered from constant pain. The pulse was rapid, tongue furred, much thirst, universal heat on the skin, appetite lost and sleep disturbed. It was determined to pass the catheter as far as possible, and to make an incision upon its point, which might be felt externally on the left side of the seam *in perinæo*. This was accordingly done to the extent of more than two inches, through the integuments, much in the same direction as in lithotomy. A large mass of coagulated and grumous blood was pressed out by the fingers, which was followed by a discharge of watery fluid to the extent of a quart at least, of a strong urinous smell, and highly tinged with blood. The catheter might then be distinctly felt and seen, having found its way through the newly formed aperture in the membranous part of the urethra. The patient's sufferings became immediately relieved. A large quantity of water drained off during the night, which reduced the parts nearly to their ordinary dimensions. On the following day, when the dressing was removed, the patient was directed to exert an effort to make water, when the whole contents of the bladder escaped through the wound.

"A flexible elastic gum catheter was then introduced, and left in the bladder, through which the man voided his urine, which, however, came away partly by the external opening, but chiefly by the catheter, till the wound began to heal. The urine then gradually resumed its natural course, and he perfectly recovered in about a month from the time of the accident, without any other bad symptom." —*London Med. and Phys. Journal*, Sept., 1812.

Case III. "A man æt. 42, fell across the edge of a door upon his perinæum. Considerable bleeding took place from the urethra, and effusion into the scrotum and perinæum opposite the bulb. When admitted into St. Bartholomew's Hospital, he had not passed any urine for many hours. An attempt was made by the dresser to pass a catheter, without success; and Mr. Stanley, who was passing through the ward, was requested to see him. After some time he succeeded in passing a small elastic gum catheter into the bladder, and some water mixed with blood was drawn off. Mr. S. distinctly felt the rupture in the urethra in passing the instrument, which was directed to be left in the bladder.

"Mr. Earle saw the patient the following day, and found a tumour of the size of a large walnut rather to the left of the bulb. The scrotum was black with effused blood, but not much distended. Urine mixed with blood continued to flow

through the catheter. He was largely bled from the arm, and twenty leeches were applied to the perinæum.

"He continued to go on favourably for some days, but on the 25th the catheter slipped out, and the patient attempted to reintroduce it, which caused some return of arterial bleeding. He had suffered during the preceding night with severe rigors and fever. Mr. Earle introduced a large catheter without difficulty, in doing which the laceration in the urethra was distinctly felt about the bulbous part. The shivering and fever returned at night, and the patient removed the catheter, which was followed by considerable hæmorrhage.

"On the following day he was very ill, with frequent disposition to shiver, and the tumour in the perinæum had increased in size. A free incision was made through the tumour, and extended downwards towards the anus. The membranous part of the urethra was distinctly felt, but not opened, as the lacerated opening communicated directly with the upper part of the incision, and afforded a ready exit for the urine. The wound bled freely, and gave the patient much relief. From this time he was able to pass water without the assistance of the catheter, partly through the wound, but principally through the natural passage. The wound suppurated kindly, and speedily healed.

"It was necessary for some time to pass bougies, to counteract the effect of the contraction at the cicatrized portion of the urethra."—*Ibid*, April, 1828.

Case IV. "A man, æt. 36, was admitted into St. Bartholomew's Hospital, Sept. 13th, 1827. He stated, that on the previous evening, he had fallen about fifteen feet, and struck the perinæum across an iron bar. Violent hæmorrhage took place from the urethra, and the scrotum and integuments became distended with blood, accompanied with severe pain. He sent for a surgeon, who made many attempts to pass a catheter without success. He was bled, and leeches were applied to the part; but he passed a night of great misery, and the following day was admitted into the hospital. His bladder was at this time to be felt above the pubes; no urine had passed since the accident, (sixteen hours,) nor for some hours before. His countenance was anxious, and expressive of much suffering; pulse 100, and full; perinæum and scrotum much distended, and of a dark livid colour: there was no external wound.

Mr. Earle cautiously introduced a full-sized silver catheter, which passed readily down into a cavity filled with coagulum between the rectum and membranous part of the urethra. The finger, introduced into the rectum, readily detected the point of the catheter in this situation. Mr. E. immediately made a free incision opposite to the bulb of the urethra, and extended it parallel to the rupture to the extent of two inches. A quantity of coagulum and fresh blood escaped, and the catheter became apparent, passing through the ruptured opening at the upper part of the bulb. Mr. Earle attempted to introduce an elastic gum catheter from this part into the bladder, but not readily succeeding, he desisted from any effort. The finger, introduced into the wound, passed into a large cavity filled with coagulum. It did not appear that any urine had been effused. He was placed in a warm hip-bath, which encouraged the bleeding from the wound, and loosened some of the coagulum. Whilst in the bath, some urine flowed through the wound. He now became very faint, and was removed to bed; and the bleeding was restrained by the application of lint and cold cloths. Urine mixed with blood continued to dribble away. He passed a tranquil night, without any return of bleeding.

On the 15th, he passed about half a pint of urine voluntarily through the wound, which relieved him much.

On the 17th, he experienced difficulty in passing his water through the wound, and the dresser endeavoured to remove a coagulum which presented itself. This was followed by a return of arterial bleeding, which continued to flow through the greater part of the night, until the patient was alarmingly faint, requiring the administration of brandy and ammonia, with opium.

On the 18th, no urine had passed, but the bladder was not distended. He continued very faint, with a feeble intermitting pulse. On raising him upon a night-chair, he was able to pass water through the wound. Suppuration now began to take place, and no farther alarming symptoms occurred.

October 2nd. A good sized metallic bougie, No. 12, was introduced. On reaching the situation of the wound, it met with some resistance, which was readily

overcome, and the instrument passed on without difficulty into the bladder. On withdrawing the bougie, the patient passed some water through the natural passage.

"The bougie was introduced every second day. The wound in the perinæum now rapidly healed, and was closed by the 8th of October."—*Ibid.*

Case V. A gentleman, in consequence of his horse taking fright and running away, lost his stirrups and seat at the same time, and was forcibly thrown forward on the pommel of the saddle, where he remained some time, the horse plunging and galloping violently. The gentleman being a good horseman, several times attempted to regain his seat, but was as often thrown forward; when finding himself much injured he threw himself on the ground, whence he was carried home. The surgeon who saw him first, found that there was a very considerable contusion along the course of the urethra, and that the penis and scrotum were much tumefied; the latter, indeed, filling fast with extravasated blood and urine. The patient was bled, took an aperient, and a saturnine lotion was applied to the injured parts; several attempts were made to explore the urethra, but in vain. In the evening the appearance of the parts was still more formidable; the scrotum at this time was enlarged to the size of a child's head, and perfectly black. Under these circumstances, Mr. Cline, who was then called in, ten hours after the accident, made a lateral incision in the perinæum, (as for lithotomy, but without the usual guide of staff or sound) and having punctured the bladder, urine issued from the wound. An opiate was then administered and the patient put to bed. In the morning the appearances were more favourable, "the urine flowed through the wound, and the scrotum had not increased in size. All immediate danger had subsided, and it was hoped that when absorption of the fluid contained in the scrotum took place, that an opportunity might present itself of discovering the passage into the bladder by the urethra; all attempts at which, under the present circumstances, proved completely abortive. These expectations were verified by the event. The patient was enjoined a strict regimen, due attention was paid to the bowels, and an opiate generally administered at night. In the course of a fortnight, the *absorbing process presented a curious phenomenon. The whole surface of the abdomen, and from the pubis to the chin, displayed extravasated fluid in all its shades* upwards. No untoward symptom had occurred, the urine continued to pass by the puncture. A portion of the urethra was discovered, and every day more of that passage was found out; till at length, before a month had expired from the time of the accident, a few drops of water discharged itself through the urethra, and afterwards continued to pass through that channel; the external opening was allowed to heal, the parts were reduced to their natural size," and in another month the patient was entirely well.—*Ibid.*, May, 1809.

Case VI. The subject of this case was a lad sixteen years of age, admitted into St. Thomas's Hospital, 15th July, 1826, with retention of urine, accompanied with severe scalding pain in the perinæum, and earnest desire to empty the bladder.

"On examination, the bladder was found distended and rather painful, and the perinæum much swollen and very tender: from this part the cuticle was partially abraded, as it was also from the inside of both thighs, where ecchymosis to a considerable extent had taken place, producing great discoloration, in which the scrotum and penis participated. The lad walked with much difficulty, bending forward the body and separating the legs, and he complained that this exertion aggravated the pain.

"On inquiry, it was ascertained that, at six P. M., while standing on some rails to take down the blinds from a window, his foot slipped, and he fell, the legs crossing the railing, and the whole weight of the body and force of the fall being concentrated upon the perinæum. He immediately felt an urgent desire to void urine, but was unable to pass a single drop, and, not having passed water since the morning, the repeated ineffectual attempts produced considerable pain. The swelling and pain in the perinæum came on at the same time, and, continuing to increase, he was brought to the hospital; and an attempt was made to introduce a catheter, which however passed no further than the bulb of the urethra, and

there appeared to enter a cavity, in which the point readily moved in every direction: during this operation, a small quantity of blood escaped. Mr. Travers was now sent for, who on his arrival repeated the attempt with no better success; and he therefore resolved upon laying open the perinæum, and endeavouring to find the continuation of the urethra, as no doubt was now entertained as to the fact of laceration having taken place.

"July 16th, at half-past three, A.M.—The lad being placed on a table, in the same position as in the operation of lithòtomy, a deep incision was made along the line of the raphé of the perinæum, and a large quantity of firmly coagulated blood removed. A catheter was then introduced at the glans penis, and the point of the instrument was seen in the wound, surrounded by the torn urethra, which appeared to have been completely divided at the bulb, one-third of its length from its termination in the spongy portion of the urethra. After a short but attentive examination, the continuation of the canal, having a clean cut edge, was found retracted about half an inch, and thrown to the left side. Into the vesical portion a silver female catheter was passed till it entered the bladder, when two pints of clear urine were drawn off. No urine appeared to have escaped previously; nor did a drop pass, notwithstanding the repeated efforts of the patient by Mr. Travers' direction, preparatory to the introduction of the catheter. The female catheter being withdrawn, a gum elastic catheter was introduced along the whole line of the urethra. Simple dressings were then applied to the wound, and retained in position by the T bandage, to which the catheter was attached. The lad was now removed to bed.

"Ten, A.M.—He has slept one or two hours. Has but little pain. The bladder is not distended, but there is slight tenderness of the hypogastric region on the left side. Neither fæces nor urine have been passed since the operation. The face is flushed; pulse 110, full and firm; tongue white and dry; slight thirst.

"℞. Ol. Ricini ℥ss. statim sumend.; et post duas horas repetend. nisi alvus prius responderit.

"Two, P.M.—The bowels have been freely relieved, and he has passed half a pint of clear urine, rather high coloured; since which the pulse has become less rapid, and his general appearance more tranquil.

"For two days a little urine escaped through the wound, but on the 19th, the whole passed through the catheter, and the wound was healthy and granulating. On the 22nd, the catheter became partially plugged, and, notwithstanding the injection of warm water, the obstruction daily increased, and by the middle of August none of the urine escaped through it, but took its course principally through the urethra, by the side of the instrument; while a small quantity passed in drops from the wound. The catheter was, however, suffered to remain as a director to the urine, and for the purpose of obtaining a complete re-establishment of the canal of its proper dimension.

"In the beginning of September, the bladder becoming rather irritable, and the wound in the perinæum painful, the catheter was removed, and found coated and lined with a thick deposit of uric acid, for about two inches from the extremity which had lodged in the bladder. The removal was followed by a little hæmorrhage from the urethra, which soon ceased.

"September 9th. The irritability of the bladder has subsided, and the wound is healthy and granulating; nearly one half has cicatrized. Less urine passes through the wound since the removal of the catheter.

"October 11th The wound has now completely cicatrized, except at a pin's point opening, through which two or three drops of urine, at the most, escape during the day. The stream of urine from the urethra is as large, and passes as freely as before the operation.

"By the application of lunar caustic to the opening, it healed in a few days; and on October 25th he was discharged."—*Ibid.*, January, 1827.

Case VII. "A stout, muscular man, æt. 41, admitted into St. Thomas' Hospital, 10th August, 1826, with retention of urine, of 48 hours duration, the consequence of an injury to the perinæum.

"It appeared that, on the evening of August 8th, he was occupied in the chains of a vessel lying off Rotherhithe, when, by some accident, he lost his hold, and fell about six or seven feet, with one leg on each side of the edge of a boat, so that

the perinæum was severely bruised: considerable swelling and tension were the immediate consequence; but, having passed his urine two or three hours before, he felt no desire to evacuate the bladder. During the night he slept well, as usual, and was quite easy till the morning of the 9th, when, on attempting to make water, he found that merely a small quantity of blood passed from the urethra, unmixed with urine. The retention continuing, and the desire to void the urine becoming more urgent, in the evening he applied to a surgeon, who attempted to introduce a catheter, but was foiled by the arrest of the instrument at the bulb of the urethra. About half a pint of blood flowed through the catheter. The surgeon then directed the application of twelve leeches and a poultice to the perinæum. On August 10th, the urgency was still greater, and the lower part of the abdomen became painful; but his health was not disordered, and he was able to walk three or four hundred yards to consult another surgeon, who applied six leeches. On the evening of the 10th, he was brought to the hospital, when the perinæum was found entire, but much swollen and tender to the touch; the penis and scrotum, and the inside of both thighs, discoloured by effused blood; and the bladder evidently much distended, producing considerable pain in the lower part of the abdomen. The desire to empty the bladder was very great, and gave an anxious expression to the countenance; the pulse was but slightly quickened.

"Mr. Green, after attempting to introduce a catheter without success, (producing only a flow of blood,) directed the patient to be placed in the same posture as in the operation of lithotomy, and then made an incision in the line of the raphé of the perinæum, the knife passing into a cell of blood, partly fluid, partly coagulated, extending towards the arch of the pubes. On introducing the catheter from the glans penis, it passed into this cell, protruding with it the ragged edges of the urethra, which was lacerated to the extent of an inch, probably close to the prostate gland, as no difficulty was experienced in passing the catheter on to the bladder. It was also distinctly seen that the triangular ligament was partially lacerated. Three pints of urine, highly tinged with blood, were drawn off, and the silver catheter left in the bladder, and fixed in its situation by a T bandage.

"August 11th. Has passed a comfortable night, and is easy and quite free from pain, excepting the smarting of the wound. Pulse, sixty-five, full, soft, and regular; the tongue is foul, and he has slight thirst; the bowels have been moved twice; the urine passes through the catheter in tolerable quantity,—it is, however, mixed with blood: a small portion passes from the wound in the perinæum. The tenderness of the abdomen has subsided.

"The urine continued to be bloody till the 14th, after which it became natural. The bowels were rather costive, and he was ordered to take Ol. Ricini ℥ss. pro re nata. Some portion of the urine continued to pass by the wound till the 19th, after which the whole passed through the catheter.

"August 20th.—The catheter having become partially plugged, it was removed, cleaned, and again introduced. The wound is healing rapidly, the granulations at the bottom having inosculated.

"September 4th.—The granulations have filled the wound, and are now on the same level as the perinæum. Cicatrization to some extent, has taken place at the extremity of the incision, and the same process is going on at the edges.

"As the vessel to which he belonged was on the eve of sailing for Riga, and as the captain was unwilling to go without him, the patient was allowed to leave the hospital; having first exchanged the silver for an elastic gum catheter, which he was directed to wear till the wound was quite healed."—*Ibid.*, May, 1827.

Case VIII. "A robust man, 40 years of age, whilst in the act of mounting a horse, (4th March, 1827,) was, in consequence of the strap of the stirrup giving way, thrown upon the ground; whilst lying upon his back, with his foot entangled in the stirrup, he made several violent but ineffectual efforts to regain his footing. The bystanders asserted, that whilst the patient lay on the ground, he was trod on by the horse; but there was no mark of external contusion, not even the slightest scratch or bruise. Being disengaged from the horse, he was able to walk a considerable distance, to his home; when he arrived there, he discovered that blood was flowing profusely from his penis. Dr. D. F. Condie, the narrator of the case, saw the patient about half past nine, P. M. A full stream of bright coloured blood was flowing from the orifice of the urethra, and the amount of blood

which had been discharged was considerable. He was directed to go to bed, to have cloths wrung out of cold water applied around the penis, and to the pubes, and to take a dose of sulp. magnes. in divided portions. Early the next morning, (9th,) the patient was found in great agony, from a constant desire, without the ability, to void his urine. The bladder was greatly distended: he had never before been affected with a stoppage of urine, and had, a few minutes previous to the accident, passed it in a full and free stream: during the night he had discharged, at intervals, a small quantity of blood. A catheter was readily passed into the bladder, and through it was immediately discharged about a pint of blood, mixed with a small quantity of urine, followed by a few coagula: the discharge ceasing, the catheter was withdrawn, and found to be completely filled with coagulated blood. Dr. C. attempted to introduce another of the same size and curvature, but without success; after entering the urethra about an inch, the instrument appeared to escape from the natural canal, when its further progress was immediately arrested; by a slight change in the direction of the point of the instrument, this first impediment was, without much difficulty, overcome, and the catheter could be passed on, until it arrived at the arch of the pubes, where it was found to enter an unnatural opening at the inferior part of the urethra; its point being felt almost immediately beneath the skin. The patient was put into a warm bath; opium gr. i. given, and cloths wrung from warm water applied over the bladder. With the assistance of Drs. R. Coates and J. R. Barton, attempts were again made to introduce the catheter, varying the size, form, and direction of the instrument, in every possible manner, but with no better success; and every attempt produced considerable hæmorrhage. The attendants were satisfied 'that the urethra had been torn across at two different places,—one about an inch within the external orifice, the other at that part of the canal corresponding to nearly the centre of the scrotum. About twenty hours had now elapsed since the occurrence of the accident. The patient complained of much pain in the bladder, which latter was greatly distended, and rising considerably above the pubes. The propriety of an operation to evacuate the bladder was suggested, 'as, however, the general system of the patient had, as yet, suffered but little, his pulse, strength, and spirits continuing good, this, taken in connexion with the *very doubtful result of any operation that could be performed*, and the earnest entreaties of the patient to delay as long as was possible, induced us to wait the appearance of the case on the next day, before coming to any decision. In the mean time, the warm bath, warm fomentations over the pubes, and internally opium grs. iij. were directed.' During the night the patient passed a considerable quantity of very dark coloured blood, mixed with urine; and the next morning the distension of the bladder was somewhat reduced, and nearly all uneasy sensations were gone:—the scrotum and penis were somewhat swollen, and, together with the perinæum, were of a dark colour, from an injection of blood in the cellular tissue. The patient being costive, directed an enema. During the day, he continued to pass, at intervals, a large quantity of blood and urine, and during the night of the 7th, after a violent effort to empty the bladder, a coagulum escaped from the urethra, two or three inches in length, and nearly of the thickness of the little finger; it was followed by a very copious discharge of extremely dark coloured, somewhat fœtid urine.

"8th. Nearly all swelling and uneasiness of the bladder removed: the urine passes off involuntary. Bowels being costive, directed a dose of castor oil. The patient appeared from this time to be gradually recovering from the effects of the accident, until the 14th, when he complained of tenderness along the course of the urethra, with heat and smarting in the act of passing his urine. Skin hot, pulse quick and frequent, thirst considerable. In the course of the day, the pain in the urethra greatly augmented; on examination, found the latter, particularly in the perinæum, swollen and hard: the scrotum was also greatly enlarged, tense and painful, presenting many of the appearances of hydrocele: directed twenty-four leeches to the urethra, and a dose of sulph. sodæ. From continued neglect on the part of the patient, the leeches were not applied until the 17th. The pain, hardness and swelling of the urethra, were greatly relieved by the topical depletion. In the evening, the discharge of urine was again entirely suspended: the bladder somewhat distended, bowels costive; directed the leeches to be repeated to the same extent as before, and the patient to take, occasionally, a dose of the compound powder of jalap; the scrotum and region of the bladder to be kept constantly

fomented with cloths wrung out of warm water: from these the patient experienced very great relief; and, on the morning of the 19th, he passed a coagulum, four inches in length, and about the thickness of a common quill, perfectly white, and rounded at the extremities; the coagulum was followed by about a quart of dark coloured urine: swelling and pain of the urethra, and distension of the scrotum, greatly diminished; in which state they continued, the patient passing his urine naturally, until the evening of the 21st, when the inability to evacuate the bladder, with the pain and swelling of the scrotum, again returned: every attempt to introduce the catheter was ineffectual. By the 22nd the tumefaction of the scrotum extended half way to the knees; a very considerable swelling was also discovered in the perinæum, soft, and without pain. On attempting now to introduce the catheter, the instrument, after continuing in the course of the urethra for a few inches, suddenly dipped down within the scrotum, and from thence gave discharge to a very considerable quantity of thick, ropy, deep coloured urine. At this period of the case, Dr. Hewson had the kindness to see the patient with me: it was concluded, that in order to give a free passage to the urine, an incision should be made into the urethra, at the anterior part of the perinæum: this was accordingly done, and through this opening, the urine continued to be entirely discharged, until about the 30th. From the period of the operation, the swelling and inflammation of the scrotum very rapidly diminished, and were entirely removed by the end of the month, at which time the patient was able to walk out. The urine was now occasionally passed by the natural outlet; and by the 13th of April, the opening in the perinæum was entirely closed, and the patient discharged cured."—*N. A. Med. & Surg. Journal*, Oct. 1827.

Case IX. A man æt. 22, on the evening of 17th July, 1825, received a violent kick on the perinæum from a man's foot. "A profuse hemorrhage immediately took place from the urethra, and he nearly fainted from the excessive pain which the blow occasioned. On the following morning, the 18th, he was brought to St. George's hospital, having been unable to make water since the accident, and suffering much uneasiness from the distension of his bladder. There was a good deal of discoloration about the perinæum, from extravasation of blood; but very little swelling, and not so much tenderness as might have been expected. The house-surgeon passed a silver catheter into the bladder, and drew off a pint and a half of urine, mixed with dark coloured blood. The hemorrhage had previously ceased, and there was now only a slight oozing of blood from the urethra.

"He was directed to have some house-physic; to keep the contused parts constantly wet with compresses soaked in cold spirit lotion; and a flexible gum catheter was placed in the bladder, in order to prevent any effusion of urine from taking place through the ruptured portion of the urethra.

"In the evening, it was found that no water had been voided through the catheter, the eyes of it having been blocked up with coagulated blood; and there was a good deal of pain and distension about the bladder in consequence. The instrument was therefore taken out, and another introduced, and twelve ounces of urine drawn off.

"July 19th.—The water had flowed freely through the catheter during the night; and this morning early he took a Senna draught, which operated well. In the last portions of urine voided to-day were a few drops of blood. He said he was free from pain; he had no fever, and there was scarcely any swelling in the perinæum.

"In the evening, he complained of pain in the head, and had made no water since the middle of the day; he had a dry, furred tongue, and a small, weak pulse. A fresh catheter was passed, but there was no urine found in the bladder, and only a few drops of blood came away. He was ordered a draught with thirty drops of landanum and a drachm of Sp. Æther. Sulph. comp.

"20th.—Had a restless night, but did not complain of pain. He had made no water, and was much in the same state as on the preceding evening. The catheter was again passed, but no urine was found in the bladder. There was no particular heat of skin or thirst, or urinous smell about his person, as is sometimes the case where the secretion of urine is suppressed. He was directed to be put into the warm bath, and to take the following draught every two hours:—℞. Pulv.

Ipecac. co. gr. v.; Potassæ Nitr. gr. x.; Pulv. Tragæ. co. 3ss.; Aquæ Piment. ʒjss.; Sp. Æth. Nitr. 5j. M. fiat haustus.

"In the evening he became comatose, and the skin over the whole body completely jaundiced; and on the following day, at 11 o'clock, he died. About two hours before he expired, the catheter was passed, and two ounces of dark-coloured offensive urine were drawn off.

"At the examination of the body after death, the urethra was found to have been extensively ruptured between the bulb and the prostate gland; and the cellular structure surrounding that part, and in the perinæum, was loaded with a profusion of dark-coloured coagulated blood, but without any admixture of pus or urine in it. The bladder was quite empty, and in a perfectly healthy state; nor could any disease be observed in the kidneys, or in any of the viscera of the abdomen. The gall-ducts were not obstructed.

"In this case the suppression of urine probably depended on nervous sympathy, or consent, between the kidneys and the urethra. It came on at the expiration of nearly forty-eight hours after the receipt of the accident, at a time when every thing appeared to be going on in the most favourable way, and destroyed the patient at the termination of about forty hours."—*London Med. & Phys. Journ.* May, 1827.

Case X. "10*th mo.* 15th, 1828. Jeremiah Waterhouse, aged about thirty-five years, farmer, a muscular, strong, and admirably well-formed Englishman, was admitted into the Pennsylvania Hospital with a severe injury of the perinæum and scrotum. The accident occurred in the following manner:—The patient was in the service of Geo. Bleight, at his farm near Germantown. While in the city with a farm wagon and horses, he was standing on the shelvings of the wagon, when the horses started off; he was thrown from his position and fell astride and in front of one of the wheels, which struck him with great force on the perinæum. After the accident he was carried home, and was visited by Dr. Betton of Germantown, who advised his removal to the hospital.

"Dr. J. Rhea Barton, the attending surgeon, at that time being absent from the city, I was called to visit the patient, and saw him about twenty-four hours after the injury was received.

"I found him in great pain; his bladder was much distended, and he was entirely unable to pass urine. The introduction of the catheter had been several times attempted before I visited him by Dr. George Fox, the house surgeon. He found it impossible to succeed. The situation of the poor sufferer was sufficient to kindle up the sympathy of any one that saw him. His distress was intense, yet he bore it with manly fortitude. I put forth my best endeavours to relieve him. Repeated attempts were made to pass the catheter with all possible gentleness. Every effort was unavailing. I left him after directing that he should be freely bled; and have leeches applied to the perinæum, in order, if possible, to remove the inflammation and tumefaction of the parts. An opiate was prescribed. On my return again that night, the attempt to pass the catheter was renewed, with the same result. At this visit my fears were fully confirmed, that the urethra was extensively lacerated. I ordered a consultation to be called next morning, and left the patient, after directing that he should be kept quiet by opiates.

"My colleague, Dr. Thomas T. Hewson, met me at 10 o'clock. We found the patient in great pain, and very anxious for relief. The catheter could not be introduced, and we concluded to tap the bladder from the rectum.

"When about to proceed to the operation, I introduced my finger into the rectum, and was forcibly struck with the absence of that elastic feeling imparted to the finger in a common case of distended bladder. Instead of this, it gave the sensation of a soft, doughy substance, as if the indentation of the finger must have remained sometime after it was withdrawn from the part. I requested my friend Dr. Hewson to examine, and his impressions were precisely the same. We concluded that this state of things must be caused by an effusion of blood between the rectum and bladder. We thought it best to proceed with the curved trochar, as the authority of surgeons, perhaps, preponderated in favour of a puncture from the rectum in case of recent accident. I now introduced the instrument, and pushed it through the rectum towards the bladder so far as appeared necessary to reach the viscus. On withdrawing the stilet, nothing but a little grumous blood passed through the canula. We were placed in a painful dilemma. To fail in

relieving a fellow creature from extreme suffering was distressing, and we could not avoid feeling increased interest in the patient, from the entire confidence he reposed in us, and the readiness with which he submitted to every thing we proposed.

"It was now agreed to make a puncture a little higher up, which was done, and the instrument was pushed as far towards the bladder as we thought prudent. It resulted in bitter disappointment; no urine passed through it. No doubt now remained of a much more extensive effusion of blood between the rectum and bladder than we had anticipated. We met again at 3 o'clock, and Drs. Physick and Hartshorne, two of the former surgeons of the institution were invited, and kindly attended. The whole case was laid fully before them; they made one more unavailing effort to pass the catheter, and we all united in judgment that the only alternative which remained, was to tap the bladder above the pubis. The patient was not only willing, but desirous of having the operation performed.

"Assisted by my friends Drs. Physick, Hewson, and Hartshorne, and in the presence of a number of pupils, I proceeded, and made an incision in the course of the linea alba a little above the pubis, the parts being previously shaved. I carefully dissected down between the pyramidal muscles, and soon felt the distended bladder. I now passed a curved trochar down into the viscus. The stilet was withdrawn, and the urine followed. I had prepared for the occasion a second silver canula, with a rounded point, and perforated with holes on the side like the common catheter. This was accurately adapted to the large canula, so that it could be passed through it into the bladder. This was done, and the bladder was relieved by a copious discharge of urine. The advantage of this second canula consisted in its projecting some distance beyond the other, and presenting to the internal coat of the bladder, a smooth rounded surface, instead of an abrupt edge. The canulæ were now retained in the bladder by means of tapes, and the wound was closed by adhesive strips.

"After the operation the patient was kept under the use of opiates, and, for the first few days, upon a low diet. He had but little fever, and passed his urine freely through the canula; though with all the care that could be taken, some portion would escape through the wound by the side of the instrument. The afflictions of the patient did not terminate here. His scrotum became more tumid, and exhibited evident marks of gangrene. He was now placed on a very generous diet, with bark, elixir of vitriol, &c. Poultices were applied to the mortified parts. Dr. Barton having returned, the patient was placed under his care. A flexible catheter was finally substituted for the silver canulæ; the mortified parts about the scrotum sloughed and healed; but his constitution had received a shock too severe for his ultimate restoration. As he weakened, a most extensive slough took place on his back, and he finally died with hectic fever, 11*th mo.* 16th, about one month after the accident. On dissection after death, it was ascertained that the two punctures made through the rectum had entirely healed.

"The evidences presented on dissection in this case, afforded to my mind the gratifying assurance, that the poor sufferer did not sustain any material injury from the unsuccessful efforts to puncture the bladder from the rectum.

"It has settled me, however, in the conclusion, that until more enlarged opportunities for judging on this subject shall be afforded, I shall never again attempt to tap the bladder from the rectum. The opinion of my worthy old master, Dr. Wistar, was decidedly in favour of the operation above the pubis; and it will require some pretty clear evidence to change my present opinion."—Parrish's *Surgical Observations.*

Case XI. "Robert Dainty, a seaman, of his Majesty's ship Glory, on the 20th of May, 1806, fell from the gangway across the gunwale of a launch along-side; he was much shook, in considerable pain, and a little faint; but walked with a little help to the sick birth. On examining the perinæum, there was no appearance of injury, except a trifling fulness, and scarce any pain to the touch; he so soon recovered as to be earnest to return to his labour, which I would not allow, fearing more serious consequences; a large compress with saturnine lotion was applied, and strict rest enjoined. My fears were too soon realized, for in about an hour afterwards, on attempting to make water, he fainted away, and not one drop passed, and yet he felt the bladder empty; a greater sense of fulness occupied the peri-

næum, but as yet no appearance of swelling or fluctuation. Anticipating great inflammation, he was immediately bled, ad ℔i. The cold lotion was assiduously applied, and an opiate given; two saline enemas were administered in the evening, which operated copiously; he had also a natural stool.

"At 4 A. M. on the 21st v. s. ad ℔i. He was confined to bed, and the scrotum suspended. This day no fever, but repeated the enema, lotion, and kept him very low; only a little tea, and that as sparing as possible, to prevent secretion of urine. He lies quiet and half asleep; occasionally a very sharp pain for about a minute in an hour, about the membranous part of the urethra, extremely acute, as if the urine came so far and went back again. To the question, if he felt a sense of water trickling through? He said, Yes, something of that kind. A considerable rigor followed his fainting; very much like Sharp's case.* The perinæum soon began to swell, and the scrotum likewise, followed by discoloration, and rapidly extending in every direction, so as to become this morning one livid mass; the whole scrotum and penis swelling, and as it were filling out together; so also around the perinæum and tuberosities of ischium, presenting a horrid appearance, like a part in a complete state of sphacelus; but it is chiefly the effect of extravasation and the blow, and the suppression of circulation, from the quantity of urine insinuated into the cellular membrane. The prepuce is puffed like a large phimosis, or as in extensive anasarca of the penis, the glans is quite hid, and in short, the whole of those parts are about six times their natural size. Perinæum very sensible to the touch, but no heat or tension; feels most like a bladder about half full; the region of the bladder is quite flat, and not sore, as if there was not a drop of water in it. From the first moment I suspected serious mischief, therefore acted as in a case of inflammation. It was now necessary to examine the state of the bladder, as he had not passed off any urine since 11, A. M. of 20th; the desire was continual, but every effort gave intense though not long pain in perinæum. Proceeded to ascertain the state of the bladder; at the first attempt it went very little beyond the membranous part of the urethra; felt some resistance; would not force, but withdrew the instrument; about two ounces of clear blood came off; a bad indication; shows internal rupture of blood-vessels; some clots also came off. The introduction of the catheter did not give much pain, and at the second attempt it passed easily its whole length into the bladder, but not one drop of water came off; a little more blood, then fainting, rigor continuing, and the swelling fast advancing. I still directed my attention to the effects of inflammation; determined either that the bladder is burst, or the membranous part of the urethra lacerated. He had drank about a quart since the last micturition. Feels a sense of water passing, and constant filling of the perinæum and scrotum.

"Got him into bed; had a stool in the evening rather involuntary; I emptied the rectum also by a stimulating enema, and seeing the importance of an empty bladder in case of inflammation, passed the catheter a third time; no force required or resistance made; no urine flowed; continued a very liberal application of the cold lotion, and in the evening, when the circulation was restored from faintings, and having some fever, and a little fulness of pulse; bled him ad ℔i. Rep. enema, and gave opium, gr. I.

"Has had several slight rigors, and as his pulse is still full, bled again this morning, ad ℔j. at 4 A. M. since which he has looked pale and weak, pulse small, soft, and not quick.

"Not a drop of water has passed, and bladder is quite flaccid; he feels about every hour the greatest desire to make water, and a few drops seem to pass through into the perinæum; and as this happens, so also the penis and scrotum distend, and also around the ischium, anus, &c. Except at these times of a few minutes sense of micturition, he lays pretty easy and sleeps tolerably. What more can now be done, than first to obviate the danger of inflammation, which appears pretty well obviated at present;[!] has no serious symptoms of fever, or pain in the belly; have less reason to fear rupture of the bladder, and increasing reason to believe that of the membranous part of the urethra; must wait, and persist against drink, although he begs and prays for it; as a great point will be to remove what fluid there is, and prevent the accession of more, till nature can operate, if possible, some favourable change.

* A case previously recorded by Dr. Bellamy, the narrator of this one.

"Through this day I gave up the apprehension of ruptured bladder, and became confirmed in that of the membranous part of the urethra, in which part, at night, the swelling was larger, fuller, and more tense, giving the feel of extravasated fluid; by lightness, most probably water, dispersed in the cellular membrane; the scrotum full the size of a small bullock's bladder; no fever, and tolerably easy, except at the time of sense of micturition. In the evening additional confirmation, if any required, for now the scrotum is so distended that it is not able to bear any more, and the region of the bladder above the pubis not a little distended, and become sensible to the touch, and his danger must rapidly increase, unless some evacuation be procured. Introducing two trocas in the depending and rather posterior part of the scrotum; a thin fluid oozed out, to the taste that of urine, and tinged with blood; secured the canulas, and got off before eight o'clock a full pint; of course, to the great relief of the patient, but yet no diminution of the size of the scrotum, because it filled up as fast as he feels the desire to micturate, but got off a pint and a half more to the evident great reduction of the bladder, and a little of the scrotum; about four ounces of blood mixed with the urine; one or two very slight chills in the night. Repeated the enema twice this day, and gave opium, gr. i. *vespere*. Enema feels comfortable, empties, even composes to sleep, though only of warm water."

"May 22. To assist the perforation of the trocar, last evening, I made a few pretty deep incisions with the lancet in the scrotum and penis, and all oozed something and helped the general intention. In the middle watch last night, another pint and a half dropped off, so that at 4 A. M. there was a striking flaccidity of the whole, especially of the bladder, but the parts are equally discoloured, quite black, and only sensible to pain about the perinæum; slept tolerably well; forbears drink, has not had above a pint since hurt, to 8 this morning. The reduction of the swelling continues, and if I can keep him from fluids, and he is an obedient patient, may hope, if the perforations continue to ooze, for a total reduction of the swelling; he evidently has no fever, or other mark of inflammation. I cannot always keep him parching with thirst, but I have done I believe all that is justifiable at present; and if I have obviated general inflammation, may have now to apprehend only local inflammation, and consequent fistula in perinæo; but there is also danger of gangrene, communicated inflammation, and the great obscurity which all these parts, and the nature of their affection are wrapped in. I had an idea, if the plan of perforating the scrotum had failed, and the bladder had filled to excess, of perforating it; now to do that, the rectum is the least objectionable way; it would be a present indication of cure, for the water to flow that way, till nature, assisted by art, might restore the mischief in the canal. Repeat the enema twice a day, give opium gr. i. pro re nata; keep him low; keep the parts clean and cold by lot. saturn. At night looked rather sunk, and pulse weak; several rigors, and regular chattering of the teeth; scrotum and bladder kept well emptied, of course little or no oozing, only one pint the whole 21 hours; he cries out bitterly for a few moments, at each sense he has of the urine trickling from the bladder, which being an involuntary act, shows a paralyzed sphincter; *swelling just kept at bay by oozing*, and the absence of drink. Can take no food; great distress from thirst; lips a little black, pulse regular in time, skin without heat, perinæum yet very full, hard, and all around to the anus the whole is black, but sensible in every part to the touch; the most sensible part has always been the right groin, and the side of the scrotum touching that part. By frequent rigors I apprehend matter is forming in the perinæum; no hiccup nor mortification; thus may hope for formation of abscess, and fistulous opening for the urine, as the only probable chance of saving him. What if an artificial opening be made on purpose? but cannot tell the exact place; may do it below the wounded aperture, and communication with the cellular membrane; besides, why not hope to restore the urine to the regular canal? for if lacerated on the lower side, it does not follow when all swelling and inflammatory thickening and obstruction are gone, that the urine should not pass on through the regular canal. There has also been a glairy discharge for some time after the accident, which I attributed to injury of the prostate, but now in the form of matter, and is rather putrid; some confirmation of the hope that matter is forming; remember the state of such discharge from Sharpe, whose case was not much unlike it, and relief given to the narrowness produced by former inflammation, by the formation of abscess and fistula, and so

might have lived, though a burthen, many years, if not for that unlucky secondary inflammation and gangrene; such will be the course here. either abscess or mortification, and to day 23d, by the severity of rigor, strong chattering of teeth, and more frequent recurrence, at least a dozen since 8 o'clock last night; hope for the formation of abscess in perinæo, which part continues very full and hard; not yet fluctuating, whereas all the rest remain lax, and very little larger than nature, and now able to draw back the prepuce. Matter oozes from the penis still, with a little blood; all the effect of the great bruise, giving hopes of matter forming there; injecting some warm water into the urethra, does not return, which confirms the opinion of the rupture of the membranes of the urethra, and that the water escapes into the cellular substance; therefore must be cautious how I repeat the injection."

"Last evening he seemed to sink a little, very weak and pale, looks low to day. Allowed ℥ss. wine four times a day, just to keep up strength and tone, also a little soup; had yesterday about a gill of soup, and in the whole 24 hours about a pint of fluid; *in fact, just as much as I think will ooze off, and keep the parts empty;* some acid eructations, but no hiccup. Some fear of gangrene, because less pain in every respect, and particularly in that of water going through; does not cry out so much as he did. Apply large hot poultices to perinæum, and suspend scrotum well; continually apply hot fomentations to region of the bladder; last evening took an early hint by seeing a greater occurrence of rigor, and hopes of matter to leave off repellant and cold system, and began warm fomentations, which felt more comfortable, and necessary to encourage circulation in the parts so relaxed, and for fear of gangrene; shall also give a cordial in small form. Confect. aromatic gr. x. augendo de die, because most afraid of debility; thirst is highly distressing, but must persist against drink."

"24. On the whole is worse, in great danger, scarce possible to live; the danger of gangrene has greatly increased; by noon, yesterday, the eructations amounted to hiccup, which has increased so as to shake and hurt him much; has had at least twenty fits of it; face sunk, eyes deadly; pulse though regular in time, is weak; skin cool, tongue brown and dry; lips and teeth somewhat black: no head-ache; and again, contrary to mortification, there are strong signs of inflammation and formation of matter; rigors much stronger, and longer, till 8 last night, since that slower and weaker, but yesterday very severe, by regular chattering of teeth; very distressing, yet he got a little sleep. I have continued strictly a large hot cataplasm and fomentation to the whole pubes, scrotum, &c. which ease and soothe; most of the orifices continue to ooze, but not equal to fluid taken, which was rather more indulged yesterday, on account of his cries for it, and to be allowed more freely; after a most pleasing circumstance, at 2 P. M. of passing the catheter, a very small one, pretty easily, when at the part supposed to be injured, and kept the point of it bearing on the upper side of the canal, for fear of entering the lacerated part, but it went completely in, and drew off a whole pint of water, to my great satisfaction and his delight; though by the uneasy position he almost fainted. Bladder did not feel, or appear to be full. I began to pass the catheter chiefly with a view, by gentle means, of ascertaining if any, and where, the obstruction might be, as also to induce a true passage by keeping it open, not unawares of the danger of exciting new inflammation. Scrotum had not enlarged, though felt harder, and believe it to be mostly by the water from the small syringe, injected to wash out matter and mucus, with a little blood from the penis; no water returned again when done last night, and scrotum seemed to get harder still; to be more backward in its use, especially if I can succeed occasionally passing the catheter, then may hope much. if gangrene does not advance; but loss of strength, faintness, hiccup, black tongue, &c are strong and dangerous signs; no delirium, but loss of spirits; feels dejected, and says, now is very ill; is very fretful. At night got worse; much pain in bottom of belly, no doubt from inflammation there; still directs chiefly to the right side of inguen, just above the pubes, where to day there is an evident swelling, very distinct from the bladder, and remaining after its evacuation, which was repeated this morning very happily, but not half a pint drawn off, yet the bladder seemed emptied by it, although so much more has been drank; this I account for by the greater oozing from the perinæum, where, on the left side, I made last night a deep incision, to ascertain if any matter; found none. Integuments very hard, by thickening; incision about

half an inch long. I foresaw this advantage, if no matter was found, that by oozing of urine and blood, there would be a diminution of tension, hardness, fulness, and redness of that side; besides, having now access to the bladder, there appeared a diminution of all danger, but that of gangrene, and even of that, if I can keep up his strength without exciting inflammation of the bladder, or urethra; so must cautiously support and stimulate, to encourage maturation of the perinæum, by cataplasm and fotus. This may lessen a great cause of extensive irritation and mischief from effusion of urine, if I am so happy to continue drawing it off, which I could not do at four this morning. At twelve, after being dressed, he expressed great uneasiness, and sense of fulness of the bladder, but to external feeling not distended; greatest distress, tension, and pain is in the right inguen.

"At 4, resistance to catheter, but not prudent to employ force. Gave opium, gr. ij. last night, but scarce slept; and the distress and restlessness for drink so great, was obliged to increase the indulgence; in the last 24 hours has taken three half pints of tea; he looks forward to the hope of satisfying his thirst, as the greatest possible blessing.

"At 9 this morning, after a few attempts with great caution, a very small catheter got in, but not the whole length, little further than neck of the bladder; yet so opened it, at least the obstructed part, that the urine flowed freely: now it may be that the urine is lodged without the bladder, and stopped by the lacerated part externally, where closed by inflammation, thickening, &c. He strained and vomited a little last night; not to day; and has kept down a gill of soup; also confect. aromatic gr. x. quart horis c. vin. ℥fs. with about four ounces of lemon juice, and as much wine besides. Seeing the great good of the last incision in perinæo, made a still more ample one on the other side, close down to the muscles; he slept a little to day, since water evacuated, and took a cup of tea; also last night a few ounces of gruel, and a tea spoonful of brandy in it.—No fœtor from the scrotum, and not vesicated or having any more putrescent appearance; rather wonderful with all the rigor, hiccup, &c. that a crisis has not taken place. To check hiccup, and stimulate gently, though it will excite water, yet given because it will at the same time cool, and be anti-putrescent, kali gr. v. in effervescence with acid wine, alternately every two hours, with confect. aromat. in vin. ℥j. singul. dos.

"℞ Catap. fotus, &c.

"25th. The poor fellow is closing his sufferings fast, *they have been immense*, but now less by the relief of delirium: he is so restless, that it is impossible to steady him; cannot now keep on any dressing, but have hitherto persisted in the use of cataplasm to perinæum and inguen, but on the latter the weight of it is too great; the part is so extremely sensible of pain, equal to touching the eye; kept tolerably composed, and had some sleep after drawing off about a pint of water yesterday.

"At 4 A. M. took some tea at breakfast; felt refreshed, but the fever continued. Teeth quite black, tongue dry and brown; less hiccup all day; one or two slight rigors only, but state of parts worse, now in solution and perfect gangrene, but no fœtor; to day one spot, half dissolved, and breaking through at the bottom of the scrotum; *it is altogether a most dreadful case of extreme anguish;* so as to produce in a most firm mind, frequent restlessness and delirium, yet at times he is rational and patient.

"I have succeeded, by great pains, in the application of the catheter, in drawing off at three different times, three half pints of urine; but the canal is full of interruptions, as if closed by inflammatory thickening, especially in the membranous part. We come now to a new view of the case. The part he has always most complained of, was the right inguen, which yesterday appeared fallen, but by noon it became rather red and hot, more prominent, and extremely sensible to the touch; this redness, fulness, and degree of pointing by the pink colour of the centre, has gradually advanced.

"There seems to be a general and deep thickening through the whole depth of the parietes of the abdomen, and I doubt not the explanation of all the rigors, internal pain, &c. is to be found in distinct inflammation of the coats of the bladder; feel assured that if he could live long enough, should see suppuration of the bladder take place. But I anticipate that he is very soon, at all events, to finish the sum of *his sufferings, as great as ever I beheld.* We recollect how soon Sharp

sunk under a nearly similar state; with the extraordinary combinations of inflammation and gangrene at the same time; there is excessive pain, heat, redness, rigors, disposition to suppuration, and actually local inflammation, whilst some parts are half putrid, and all along, since danger, a low fever; black teeth, dry brown tongue, and small pulse, cold skin, hiccup, discoloration; not at all the effect of bruise and extravasation of blood and urine; it is truly a fit Case to be compared with Sharp's. In passing the catheter, not much pain expressed, which would be if the bladder was inflamed. Dissection would be highly explanatory and useful, as I had so much more pain in evacuating the bladder, and as thirst was his greatest distress, and had yesterday indulged him in various fluids, such as tea, succ. limon. and every two hours vin. ℥j. c. confect. aromatic and kali pp. as also with some soup, and a little wine occasionally. He often felt faint yesterday, and in the night, at once greatly so at 2 A. M. appeared to be going off; on the whole it appears vain, further to try any means of cure. Keep him as clean and quiet as possible, indulge his desire for drink, which has not been evacuated in proportion to what he has received; and as the scrotum was very tense, though not so large as formerly, yet I made several deep punctures in the scrotum last evening, from which there was a considerable oozing; this will allow the freer use of fluids, which appears to be his greatest consolation; and a mercy now to let him die as easy as I can.

"26th. The poor fellow can scarce be said to be alive, and has not had a rational interval since 6 A. M. yesterday; the restlessness is immense, it is impossible to keep on any dressing. The eye became fixed about 4. Pulse gradually fell, scarce perceptible, body stretched out.

"At 9, breathing laborious, and he was thought to be going off, but pulse got up again, and he seemed to be better the rest of the day; there was also more heat of the body, even of the feet than for two days past; which, with moisture of body, as is often felt before the last period, and which, to one unexperienced, might lead to an opinion that he was better, but it is only the last effort and labour of nature.

"27. He survived all yesterday till 7 P. M. when he breathed his last very quietly.

"I proceeded to dissect. The first object was to ascertain the nature of the swelling of the groin; it was nothing more than extravasated urine, which the scrotum was not able to hold; it was evacuated upwards, only under the integuments a few ounces lodged there, and the cellular membrane was dissolved and corroded by it, and gangrene also; so that the extreme sensibility there, was the effect of inflammation of the integuments; muscles though thicker on that side, not decidedly inflamed, nor was any of the peritonæum attached to the bladder; found the bladder sunk deep in the pelvis, small, and hard, partly solid, and partly of that thickness produced by inflammation; its fundus externally red, not a drop of urine in it, firmly united, but not so strongly as Sharpe's, by adhesive layers, but yet very firmly to the peritonæum behind, and on its sides, and to the arch of the pubis. The next object was the state of the scrotum; integuments gangrened, the dartos was covered with fœtid matter, and nearly black, mixed with serum, urine, and blood; so also the same kind of matter beneath all the parts which were dissolved.

"This layer of matter, supposed to be the cause of the repeated and severe rigors, but undoubtedly many of those rigors also attended as indicative of the great inflammation; for the integuments of the scrotum did not seem to have run into gangrene, as the effect of inflammation alone, but mostly, perhaps, the effect of extravasated blood, and disorganization from the fall. Tunica vaginalis thickened, and firmly united to septum scroti, but bodies of testes natural; so was also the cord. Now the great point is to refer to the perinæum; I dissected off the integuments cautiously, exposed in the anterior part (speaking as a body is usually placed for such dissection) of the membranous part of the urethra an aperture; decidedly not made by the knife; it has all the appearance of an old hole, about the size of a small oblong bean. I had previously introduced the catheter as far as it could go, but not into the bladder, even now after death; it appeared to be stopt by the neck of the bladder. Here was a full explanation of the cause and nature of his disease. In proceeding to take out the bladder and dissecting the sides of the urethra, where it attaches to the arch of the pubis, found, on the right side, the knife unexpectedly to slip into a large cavity, exterior to the pelvis; when

by taking off some of the integuments of perinæum, and towards the anus, saw a distended layer of the membranous part of the urethra, to the size of a small hen's egg; it was soft, and so putrid that it would not bear the knife, and being then accidentally divided, a few ounces of urine came out; so this part had formed a sac for urine, the parietes of which were formed above by the still remaining entire side of the urethra, till it came to the immediate laceration spoken of, which was rather on the left side; here the waters first escaped, since that, gradual solution of the inflamed sides of the urethra has gone on, so that at last inferior parietes of the sac were formed rather by the perinæum itself, which alone suspended the urine there lodged; this decay has been the work of the inflammation, and consequent gangrene: had it fortunately terminated in abscess at first, as was hoped for, fistula in perinæo might have saved him; but the contusion had been too great, and *there was no indication for making an aperture in perinæo, for want of a place indicated;* as also the state of the parts forbid it; moreover, till the last day, after the first inflammation, the urine had been evacuated by the catheter; in short, it appears, in my opinion, that nothing could have saved him.[!]

"Compare this case with that of poor Sharp; it is singular that I should have two such, so quick, and so highly important, interesting, and unfortunate in their consequences. In this case I would presume to fix the attention of the practical surgeon on this grand and leading particular; that when the urethra is divided, the passage of urine through such aperture, will not be a remote and secondary consequence, but a primary and immediate effect."

We might readily adduce further examples* did we deem it necessary, but the preceding cases illustrate most of the points of interest in the history of the accident under consideration. The first seven cases show the usual causes productive of this lesion, the phenomena which result, and the best means of treatment. In case five, however, the incision was manifestly not sufficiently extensive, or the tumefaction of the scrotum would have diminished the morning after the operation. The object of this operation is as much to empty the cellular tissue of the effused urine, and thus preserve it from gangrene and sloughing, as to relieve the bladder of distension and prevent future accumulation. It is imminently dangerous to trust to absorption for the accomplishment of the first named object. The sixth and seventh cases are especially interesting, from their presenting the phenomenon of a complete retention of urine, not a drop having been extravasated through the rupture in the urethra into the cellular tissue of the perinæum and scrotum. This the reporter of these cases asserts to be an invariable result, and refers it to the sympathy between the lacerated parts and the sphincter of the bladder. Dr. Macfarlane, on the contrary, states that urinary extravasation is an almost uniform attendant. Both these surgeons have generalized on an insufficient number of facts. Complete retention, however, seems to occur in a majority of cases.

Case VIII. is interesting in several respects. The cause of the

* Should any of our readers desire to consult these cases, we refer them to the *Medical Communications of the Massachusetts Medical Society*, Vol. I.; *Dessault's Surgery*, Vol. II.; the *Edinburgh Medical and Surgical Journal*, for January, 1818; the *Medico-Chirurgical Review*, for July, 1827, and October, 1832; and the *London Medical Gazette*, Sept. 3, 1836, p. 893.

accident is very obscure, and cannot be said to be accounted for. The hæmorrhage in this case was much more profuse than in the others we have noticed, though this is not an uncommon consequence of contusions of the perinæum, even where the laceration of the urethra is so slight as to produce neither suppression of urine nor allow of infiltration of this fluid into the neighbouring cellular tissue. Three examples of this are recorded by Dr. Macfarlane.—(*Clinical Reports*, p. 137, &c.) The large accumulation of blood in the bladder is, however, an unusual occurrence. The treatment of the case in the first instance was highly judicious; but if a free incision had been made in the perinæum, down to the urethra, the morning after the accident, (5th March,) instead of delaying it until the 22nd of March, the patient would have been saved most of his subsequent sufferings.

Case IX. has been recorded principally on account of its unusual result, total suppression of urine—a consequence for the occurrence of which it is proper that the practitioner should be prepared, though it may not always be in his power to prevent it.

Case X. exemplifies the impossibility often existing in the accident in question, of puncturing the bladder from the rectum.

Case XI. exhibits in a forcible manner the importance of an early free incision into the perinæum, by the fatal results which attended a neglect of this measure contrasted with the favourable progress of the cases in which the incision was made. The beacon that warns us of danger is often not less useful than the guide which leads us to safety. We have therefore given this case in full, and in the very words of the author, that the reader may see the whole extent of the patient's sufferings, and without the suspicion of exaggeration. We question whether a more deplorable example of false reasoning (we might more properly say *sottisms*)—ignorance on the part of the surgeon and malpraxis than is here exhibited, is to be found in the annals of surgery. The errors are so glaring that it is unnecessary for us to point them out in detail.

REVIEWS.

Art. X. *"A Practical Treatise on Midwifery, containing the result of sixteen thousand six hundred and fifty-four births, occurring in the Dublin Lying-in Hospital, during a period of seven years, commencing November,* 1826. By Robert Collins, M. D., Late Master of the Institution. London: Longman & Co., 1835. pp. 526."

Every one is apt to appreciate most that with which he is best acquainted. The individual who spends days and nights of unremitting toil in the investigation of any given subject, is not likely to anticipate that what has cost him so much labour, can fail to interest others.

Long devoted to obstetrics ourselves, we may not be allowed to plead exemption from this common infirmity, when claiming from physicians and philanthropists a deep interest in our department of knowledge. The importance of obstetrical science, we think, is shown by the fact that in almost every instance of its practical application, the lives of two or more individuals are concerned, to say nothing of the sufferings experienced at the time, and the sad consequences which but too frequently result. And yet there are not wanting men who occupy high places in the profession, who deride and affect to regard as of little importance this branch of medical knowledge! Strange as this may appear, it is but in keeping with the practice of a vast number who make no such avowal. Why is it so? Not because any regard human life with indifference, or consider the sufferings of mothers and their offspring as undeserving of relief; but because parturition being a natural process, and some degree of anguish its inevitable concomitant, the exercise of skill is ordinarily uncalled for, and the occasional occurrence of graver consequences is lost sight of in the favourable issue of the common run of cases daily observed. A further solution of the problem may be found in the difficulties which exist in the cultivation of the science, under the restraints imposed by the natural modesty of the sex, and the customs of refined society. These impediments, however, instead of deterring, should, on the contrary, stimulate us to greater efforts to surmount them.

In every country, except, perhaps, France, the hindrances alluded to, deprive students of midwifery of the opportunities for the attainment of practical skill which are afforded in other branches of the medical profession, by the observance of clinical practice in hospitals, while individual observation, in private practice, presents a field too

limited in general for such extensive comparison of cases as to allow of safe conclusions, in the very instances where knowledge is most required. It is, therefore, to those of our brethren who are placed under more favourable auspices that we must look for the correction of what is wrong, and the supply of whatever is deficient, in our art. On those who have the superintendence of the great lying-in charities of Europe, (and none more than that of Dublin,) the honour and the responsibility mainly devolves: and we are glad to find the task has not been wholly neglected. The latest, and in some respects the most important, of the publications which have emanated from that source, is the work of Dr. Collins, of which the title is recited above.

Dr. Collins was seven years *master*, that is *principal physician*, of the Dublin Lying-in Hospital, and, during several previous years, *assistant master*, so that he has enjoyed great and unusual advantages for obstetrical observation. His object in the publication before us, he declares to be, "to give a minute and faithful detail of what *actually passed* under his observation in the hospital during the seven years it was intrusted to his care, so as to enable the reader to form his *own conclusions*, and thus avoid the error into which so many have been drawn, of remaining satisfied with assertions made by men no wiser than themselves, and whose opinions often rest on the same foundation." The plan, as thus proposed, commends itself to the approbation of every one; all like to have *facts* rather than *opinions*, for then they can "form their own conclusions," or at least *appear* to do so. That Dr. Collins has accomplished the object he professes, we think will be admitted by all who read his work. In it are recorded a great amount of facts, set forth with an appearance of the utmost candour, in a style remarkable for its neatness and perspicuity. In his descriptions of cases, there is a commendable brevity without the omission of material circumstances—an example which might be profitably followed by many of our Journalists. But Dr. Collins has done more than merely to give a "detail of what *actually passed* under his observation." He has given us his *opinions* on nearly every mooted point in obstetricy. In this he has done right. One who has enjoyed such ample means of observation, is morally bound, we conceive, to communicate the conclusions at which he has arrived on matters of deep concernment, especially when detailing the facts upon which they are based. It then becomes the duty and the privilege of his readers to resurvey the ground, and see how far his conclusions are consistent with known facts, or supported by his own proofs. Having premised thus much, we shall present to our readers an outline of the more important points contained in the volume, with such observations as may be suggested by the peculiarity of the author's views, or the importance of the subjects themselves.

The work commences with remarks on natural labour and directions for its management. The observations of the author on this subject are judicious and proper, but differ in no material respect from those of all good writers on the subject. The treatment of natural labour essentially consists in keeping the patient cool and quiet,

guarding her from stimulants, and from voluntary exertion during the early stage, and avoiding all hurry and officious interference on the part of the practitioner throughout.

In the observance of these rules, simple and unimportant as they may appear to some, consists much of the excellence of good practice. We most fully concur with the author in declaring that where they are properly attended to, "the powers of the constitution fail but seldom in expelling the fœtus, *where there is no material defect in the formation of the pelvis;*" to which, however, we would add, *nor unusual developement or ossification of the parts of the child*, for the difficulties which occur, arise from the disproportion which exists between the one and the other, and this proper relation is at least in this country more frequently defective on the part of the child than the mother, either from undue developement or improper position.

The succeeding chapter, "On tedious and difficult Labours," to those who have seen and thought for themselves on such subjects, will be found deeply interesting. In the author's own language: "there is no subject connected with the practice of midwifery, so difficult to acquire a sound knowledge of, as the treatment of tedious and difficult labours. It is one of the most vital importance, and in the most marked manner distinguishes the experienced from the inexperienced practitioner." It is to this part of his work, therefore, we shall more particularly call the attention of our readers, as it constitutes, with the remarks on natural labours, the very platform of obstetrical practice.

The author's first rule under this head, is in the following words, and should never be lost sight of by the young practitioner. The experienced obstetrician will never contravene the directions which it contains, unless he lack intelligence to perceive their propriety, or principle to obey them.

"We must be guided, as to the propriety of giving assistance, chiefly by the present symptoms, and previous history, and not by the length of the labour, as some will suffer more in thirty hours than others in ninety. If our patient has had severe labour before, or given birth to many children, we should not, on any account, permit her to remain so long in labour as we would, if the case were otherwise. Generally speaking, so long as the pulse remains good, the bowels and bladder act well, the soft parts remain free from severe pressure, and uterine action continues, so as to cause the presenting part to descend ever so slowly, the patient having no pain in the abdomen on pressure, or local distress, the child at the same time being alive, as indicated by the stethoscope, I am satisfied no attempt should be made to deliver with instruments, and that he who does so, wantonly exposes both mother and child to danger."

"A prudent use of instruments," continues our author, "in the practice of midwifery, is of great importance; but the necessity alone of freeing our patient from impending or present danger, should induce us to resort to them."

What Dr. Collins means by "*impending danger*," we do not exactly understand. If his meaning be, that we should interpose only to prevent the immediate and direct mischiefs which follow speedily from tedious labour, without reference to the pain which the patient may endure, or the eventual results which too frequently happen, as peritonitis, dropsy, or barrenness, then we beg leave to dissent from him. Many years experience has satisfied us that patients may suffer a vast deal of pain

without much expulsive action of the uterus; and that the disproportion of the size of the child to the pelvis of the mother, may be such, that although nature may finally accomplish the delivery, it will be at the expense of health and connubial enjoyment during the remainder of the mother's life.

If the patient's sufferings can be abridged many hours, and all the dangers of protracted labour avoided, without violence or risk to either her or her child, as with the forceps we know it frequently can, it is our duty to employ the means of relief within our power, without waiting to verify our hypotheses by testing the powers of the woman's constitution. Not only in this, but in the previous remarks of the author, the life of the child appears not to be regarded. Every obstetrician of even moderate experience, knows how much the life of the child is jeoparded by tedious and protracted labour; and that, too, where the powers of the mother prove adequate in the end to accomplish the delivery. In fact, the forceps is designed for the preservation of the child. If the welfare of the mother alone were concerned, the instrument might be altogether dispensed with; and we regret to perceive that such appears to have been too much the case in the practice of the Dublin Hospital, as we shall endeavour to show.

"The forceps was used during my mastership," says Dr. Collins, "twenty-four times, and the lever three times; total, twenty-seven times; making the average about one in six hundred and eight deliveries."

That the forceps should have been required only twenty-four times in 16,414 cases, we have no doubt will be read with surprise by the American obstetrician; and the question will naturally arise, what were the rules under which the instrument was used at all? The answer to this question in the author's own language, will readily solve the problem.

"The delivery of a female with the forceps. when the os uteri is fully dilated, the soft parts relaxed, *the head resting on the perinæum*, or nearly so, and the pelvis of sufficient size to permit the attendant to reach the ear with the finger, is so simple, that any individual with moderate experience may readily effect it. I have no hesitation in asserting, that to use it under other circumstances, is not only an abuse of the instrument, but most hazardous to the patient."—p. 11.

Here we join issue with Dr. Collins. We are fully persuaded that the obstetrician who has many patients, and employs the forceps *under no other circumstances* than those indicated above, will often fail in the discharge of his duty.

Let us suppose a case where the patient has been in labour some hours before the physician is called. On examination, he finds the membranes broken, and the waters discharged; the os uteri dilated so that the arm has escaped into the vagina, with the head involved in the upper strait; the pains being regular and strong, but without the least advancement of the child. To permit matters to remain in that state, would be needlessly to expose the woman to the dangers of ruptured uterus, and to doom the child to the crotchet, either before or after its death. To push up the head and attempt to turn, would be little less hazardous. Again; suppose a woman seized with convulsions, and on examination it is found that the waters have

escaped, and that the head is in the upper strait, and presenting naturally; the convulsions are frequent and violent, but there is no advancement of the head. What is to be done here? To trust to nature would be a culpable abandonment of the woman to all the consequences of so terrible a malady, both immediate and remote; to attempt to turn would endanger the uterus; and to use the crotchet on a living child, without first trying the forceps, would be murder. Now, these are other and very different circumstances from those allowed of by Dr. C., and yet we have used the forceps, and repeatedly too, in the presence and with the sanction of eminent obstetricians, in just such cases; and in every instance with complete success—complete, for the mothers and their children were all preserved, and without any bad consequences whatever resulting from the application of the instrument. That the use of the forceps under the circumstances indicated by Dr. C. "is so simple that any individual, with moderate experience (with the instrument) may readily effect it," we freely grant. But we think we have shown that there are other circumstances where the instrument is demanded, under which its application is not so simple, and which make it the duty of those who practice midwifery to be better prepared to encounter the difficulty. We not only believe, but are certain of the fact, that the use of the forceps is proper under circumstances not noticed by our author, but that a proper degree of skill and higher qualifications than he deems necessary, will enable a practitioner often—very often—to save the life of a child that would otherwise be lost, and greatly to abridge the sufferings and the dangers of the mother.* Still we do not advocate the frequent or rash use of the instrument; far from it. No artificial means whatever should be employed *merely to save time*—either that of the patient or practitioner. *Any operation* of a surgical character should be determined by mature judgment and experience, and performed by a skilful hand. The cautionary observations of Dr. C. on this subject, are deserving of all commendation. "In every instance, where practicable, previous to doing so, (using instruments,) it is desirable a second physician should be consulted in order to satisfy both the friends of the patient and ourselves, that we are doing what is essential for her safety. Some practitioners never think of taking this precaution, nor do they ever attend a patient without the lever or forceps in their pocket, and use them, without ever apprizing the female herself; such conduct I look upon as unjustifiable in the extreme, and am happy to think *it is the practice of those only who have little character to lose.*"

*In these remarks we have reference to the long curved forceps used in France, and those with like mechanical advantages common in Germany and the United States. British practitioners, we believe, generally use the short, straight instrument, contrived by Dr. Haighton, or others which may be regarded as mere modifications of it. The latter cannot be applied unless the head be well down in the cavity of the pelvis, and is probably that referred to by Dr. C. If so, we marvel less at his infrequent employment of it, than that he should employ it at all, considering its great mechanical defects.

After witnessing the extreme caution with which Dr. Collins resorts to the forceps, our readers will be apt to expect that the *crotchet* would find no favour in his eyes. And yet we discover, that while the lever was used three times, and the forceps twenty-four, in 16,414 cases, the crotchet was employed in 118 cases, (see page 31,) or in the proportion of nearly five to one of the forceps! We are not in the least disposed to be censorious, much less to charge Dr. C. and his colleagues with having used the crotchet rashly or needlessly: on the contrary, the results of their practice so faithfully detailed in the work before us, speak higher praise than any thing we can say, of the humanity and intelligence with which they discharged their functions. But yet we are fully satisfied, that by a timely use of the forceps in our practice, we have many times avoided the necessity of either turning or using the crotchet.

So far from accusing Dr. Collins with rashly using the crotchet, we regard the rules which he inculcates on this point, as sound and judicious. If he errs, it is in over caution, which is praise enough for any man. Dr. C. appears to think that it can seldom, if ever, be necessary to use the crotchet on the living child. When the patient's strength has been properly husbanded, "the *death* of the *child* takes place in laborious and difficult labour, before the symptoms become so alarming as to cause any experienced physician to lessen the head." "This," says Dr. C. "is a fact, which I have ascertained beyond all doubt by the stethoscope."

It has never happened to us to be obliged to use the crotchet on a living child; and of course think we would not do it hastily: but "when uterine action continues regular and strong, for twelve or twenty-four hours after the os uteri is dilated or nearly so, without the child's head making progress: it being firmly compressed in the pelvis, not leaving space for the introduction of the finger to feel the ear, or in some (cases) the passage of a catheter into the bladder," we should then think it sufficiently manifest that the child could not be born alive, nor by the unaided powers of the woman: and we can see no good reason why the practitioner should delay to operate for "twenty-four" or even "twelve" hours. It must be recollected that rupture of the uterus or vagina may occur long before the death of the child; and when it is rendered certain that the latter event is inevitable, we cannot perceive any motive for incurring the risk of the former. In proof that this fear is not groundless, we will present a case from page 300 of the work before us: others might be selected.

"No. 32.—This patient was sent many miles from the country to hospital, in severe labour, on the evening of the 27th of May. On admission, her countenance was expressive of great anxiety; her pulse 120: the fœtal heart acting with rapidity; the head low and fixed in the pelvis. Delivery was effected *next morning at nine o'clock* (!) by lessening the head, as the child's heart had ceased to beat, and the patient had become extremely feeble, having vomited several times a dark brown fluid. A rupture was suspected from the symptoms present.

"After delivery her strength continued rapidly to fail; the abdomen became distended and tympanitic, and *she died* in fourteen hours.

"On dissection, their was evidence of extensive peritoneal inflammation; the uterus was thrown very much to the right side, and *at the left its muscular sub-*

stance was found to have given way, close to the vagina. The peritoneum was not injured, but was raised up and distended with blood underneath, resembling a bladder."

Now, from the above statement, can any one imagine why the woman was left undelivered, from the evening until 9 o'clock the next day? And the reason given for delivering her even then is, "as the child's heart had ceased to beat, and the patient had become extremely feeble"—proving that it was the rule to leave such cases to the last extremity.

In the foregoing case is it unreasonable to conclude that if the crotchet had been employed soon after the admission of the patient into the hospital, her life might have been saved? Might not both mother and child have been preserved by the forceps? Most certainly there was nothing gained by delay; and if delivery had been effected twelve or fifteen hours earlier, we think Dr. Collins will confess that the chance of saving the mother at least would have been immeasurably greater.

We dislike ultraism in every thing; and while we would most earnestly counsel the young and inexperienced against rash and violent measures, we cannot overlook the positive injunctions of writers of high authority when they run into the opposite extreme. The doctrine of Dr. Collins preliminary to this subject, already quoted, is in point here; and if it had been consistently maintained throughout his book, would have spared us these remarks, viz: "We must be guided, as to the propriety of giving assistance, *chiefly by the present symptoms* and previous history, and *not by the length of the labour*, as some will suffer more in thirty hours than others in ninety."

On presentations of the shoulder and arm, the remarks of our author are highly judicious. "In my opinion," he remarks, "there are but two modes of delivery to be considered—the one turning, the other perforating the thorax and bringing down the breech with the crotchet. As for trusting to "spontaneous evolution," described by Dr. Denman, it is a practice in every way undesirable; as, in the first place, this does not afford us *any hope of saving the child*, and the mother is thus exposed to considerable risk from the powerful and continued uterine action necessary to expel it in this way, from which, *if the child's life is to be forfeited*, she might be completely protected by lessening the thorax; and, in the next place, the occurrence of spontaneous evolution is so little to be expected, that in a practical point of view it may be considered as almost fanciful. No instance of it occurred in the hospital during my assistant or mastership; nor did one take place during the residence of Dr. Clarke." "In these different periods *there were thirty-four thousand five hundred and seventy-six* women delivered." This testimony, we think, settles the doctrine of "spontaneous evolution" as a rule of practice.

"The propriety of turning the child," says our author, "when it presents with the shoulder or arm, in all cases where it can be effected with tolerable safety to the mother, can not be questioned." He very properly cautions against forcing the uterus to effect it, and recom-

mends blood-letting, time, and close attention, until the os uteri can be passed with safety. "I never knew," he remarks, "of more than one instance where the patient could not be delivered previous to death, owing to the rigid and unyielding state of the os uteri. This occurred when I was a pupil in the hospital; the mouth of the womb was absolutely as firm as a piece of thick leather, and embraced the arm of the child as tightly as a ligature could be applied without cutting the part."

Under the head of hæmorrhage a large number of very interesting cases are related, with the treatment and results. We notice nothing special for remark, except the practice of introducing the hand into the cavity of the uterus, after expulsion of the fœtus, to excite contraction and suppress hæmorrhage. Although we are aware that this has frequently been done, we have never known it practiced to the extent inculcated by Dr. Collins. In the Dublin hospital it appears to be constantly resorted to, and repeated many times in the same case. We confess that we can hardly suppose that so much violence as the reiterated introduction of the hand into the cavity of the uterus can be accomplished without danger—without much pain to the patient it certainly cannot. Where the introduction of the hand with other ordinary means failed to arrest the hæmorrhage, in some cases it was speedily checked by a stream of cold water poured from a distance upon the abdomen. We have not observed that ergot was employed in any of these cases.

Thirty-four cases of rupture of the uterus or vagina occurred under the notice of our author. So large a number, we think, goes very far to sustain our position, that in the practice of the Dublin hospital the forceps are not frequently enough used, and that even in crotchet cases the operation was very frequently postponed unreasonably.

Dr. C. remarks that "the part that most usually gives way is at the junction of the cervix uteri with the vagina, either anteriorly or posteriorly." He has "never seen an instance where the *fundus* was ruptured; nor did Dr. Clarke, during his residence in the hospital, meet with such an occurrence." A very interesting fact in relation to this subject is mentioned by Dr. Collins, viz: that those cases in which the peritoneum was ruptured, making a free passage for the air into the abdomen, were not at all more fatal than those in which there was only a laceration of the muscular portion of the uterus. "Death ensued equally speedily" in the latter case.

The remaining portion of the work before us is not less interesting than the parts on which we have commented. All the interesting cases that occurred in that great hospital during the mastership of Dr. Collins, are given under their proper heads: and at the end of each chapter a tabular statement is submitted of the number of cases, ages of patients, results, and other interesting particulars, which have evidently cost the author a great deal of labour in the preparation. They are so numerous and extensive as to preclude us from transferring them to our pages entire, and are not susceptible of condensation. In conclusion we may remark, that so large an amount of facts on

the subject of midwifery, carefully observed and faithfully and clearly reported, as Dr. Collins' work contains, is not to be found in any other publication. Of the value of such a work it is unnecessary to say more. The experienced obstetrician will find in it abundance with which to correct or confirm his own observations, while to the inexperienced it offers the best substitute for personal observation.

R. M. H.

Art. XI. *De Glandularum Secernentium Structura Penitiori earumque prima formatione in Homine atque Animalibus, commentatio anatomica.* Scripsit Johannes Mueller, Medicinæ et Chirurgiæ Doctor, Medicinæ in Universitate Literarum Frederica-Guilelmia Rhenana Bonnensi Professor, Academiæ Cæsaræ Leopold Carol. Naturæ Curiosorum Sacius. cet. cum tabulis aeri incisis xvij. Lipsiæ, 1830. Fol. pp. 131.

An Anatomical Commentary on the structure and developement of the Secernent Glands in man and animals. By Johannes Mueller, Doctor of Medicine and Surgery; Professor of Medicine in the Frederic-Williams Literary University of Bonn on the Rhine; Member of the Imperial Leopold-Charles Academy of Nature, &c. Leipsic, 1830.

Few subjects pertaining to anatomical science have given rise to more conflicting opinions than the intimate texture of the secernent glands, yet there is none upon which it is more desirable that we should be accurately informed. The diversified glandular apparatus occupying different portions of the body perform so important a part in the execution of the functions necessary to the individual, and is besides so extensively implicated in the multifarious pathological conditions of the organization, that an intimate acquaintance with the various modifications of its structure is indispensably necessary to enable us to make a just appreciation of the influence exercised by it in health and disease.

To the celebrated Malpighi we are indebted for the first investigations of any importance pertaining to the intimate texture of the glands. He first taught that the complex glands are composed of a conglomeration of parts identical in their nature with the simple crypts and follicles; or, in other words, that the acini are made up of small round utriculi, which receive the materials of the secretions from the termination of the arteries, and transmit them to the radicles of the excretory ducts, with which they are in communication. By Ruysch, the contemporary and rival of Malpighi, this hypothesis was warmly contested, and most of our readers are familiar with the angry controversy which was at one time waged between these two distinguished anatomists in relation to this subject. Ruysch, relying upon

the results of his minute inspections, affirmed, contrary to the sentiments of Malpighi, that the intimate arrangement of the glands consists of a congeries of very minute blood-vessels; that the utriculi of Malpighi do not exist, these acini being nothing more than the convoluted extremities of the terminal arteries which secrete the fluid peculiar to the gland, and transmit it directly into the radicles of the excretory ducts.

This controversy did not suffice to settle the question; for, notwithstanding the opinion of Ruysch obtained many followers, there were still many who adhered to that of his adversary, and most of the explanations which have been subsequently attempted have been predicated for the most part upon either the one or the other of these hypotheses. Numerous monographs and memoirs have been published at different times upon many of the simple and complex glands, and a mass of interesting information has been elicited in reference to some of them; yet the subject still remains involved in considerable uncertainty, and the present treatise of Professor Mueller is, so far as we know, the only one in which an attempt has been made to furnish any thing like a full and connected exposition of the structure of the entire glandular system. Amongst those who have investigated particular glands, Bellini, Monro, Ferrein, Doellinger, Eisenhardt, Schmulansky, Tiedemann, Treviranus, Mappes, Huschke, E. H. Weber, Home, Rathke, Baer, Leuret, Kiernan, Lauth, Horner, Bœhm, &c., deserve to be particularly mentioned as having contributed valuable additions to our previous knowledge on the various subjects which have engaged their attention. But, however valuable the detached labours of these individuals, their results cannot be compared to the ample and elaborate investigations, the fruits of which are set forth in the splendid work of Mueller, of which it is our design to give our readers some account. It far surpasses any thing hitherto published, both in the richness and novelty of the facts it contains, and the beauty and accuracy of the delineations by which they are illustrated; and the publication of it may be truly said to constitute an era in anatomical science.

The work, besides the prolegomena, containing a summary of the various opinions entertained in relation to the structure of the glands, and the numerous methods of investigation, by which a knowledge of the texture of these bodies may be most advantageously obtained, is divided into fifteen books, in which the structure of the various secernent glands of man and animals is fully considered. The twelfth book is appropriated to a general summary of the texture of the glands. In the thirteenth these organs are classified according to their difference of structure. The fourteenth contains an account of their developement in the embryo; and in the fifteenth the author offers some general corollaries in relation to glandular secretion.

We shall attempt, as succinctly as possible, to furnish an exposition of the author's researches, confining our observations chiefly to the results obtained by him from the investigations of the texture of the glands in the mammalia and the human subject—passing over the

characters presented by these bodies in the invertebrate animals, which, however, we may remark here, present many points of great interest.

1. *The follicular glands of the external cutaneous system.*—The structure of the simple follicles of the skin is best seen in the naked amphibia—such as possess the faculty of pouring out an abundant mucous secretion. This is especially the case with the cutaneous glands which occupy the vicinity of the ears in frogs, and the whole surface of the body in the *Salamandra maculata*. Weber, who has investigated the arrangement of these follicles in man with great attention, affirms that the proper glandular crypts differ essentially from those which give origin to the hairs; and that in the fœtus, in which they can be most successfully investigated, they exist in great number in every portion of the skin, except that of the palms of the hands and the soles of the feet. The sebaceous follicles of the scrotum consist of small sacs, of a yellowish colour, rounded in their configuration, but not perfectly globular. The transverse diameter of these sacs is slightly greater than the perpendicular, and the fundus of each of them presents a lobulated or cellular appearance; the cells which exist within, having a slight prominence upon the outer surface. The excretory ducts are very short, and traverse the skin in an oblique direction.

According to accurate measurements made by Weber, the medium dimensions of the cutaneous follicles were as follows:

The longitudinal diameter from the fundus to the commencement of the excretory duct, . . .	$\frac{1}{6}$ line.
Transverse diameter, ...	$\frac{1}{5}$
Length of the excretory duct, ...	$\frac{1}{5}$
Transverse diameter of do., ...	$\frac{1}{17}$
Transverse diameter of the large glands of the scrotum,	$\frac{3}{4}$*

These sebacious crypts are found in greatest number at those points where the skin terminates in the mucous membranes, as about the margin of the lips, nostrils, and palpebræ; the external meatus of the ear, the verge of the anus, the corona glandis of the penis, and the labia pudendi.

2. *Follicular glands of the mucous membranes.*—The texture of the simple mucous crypts is very analogous to that of those of the skin. Many of them consist of simple foveæ, as those of the small intestines of man and animals, the nares, &c. Others exhibit bursæ, or sacs, continuous with the mucous membrane, as those of the mouth and tongue. Some assume an elongated form, as those of the ventriculus succenturiatus of some birds. And, finally, there are others which are produced into short tubes, as those of the first stomach of birds, and many of those occupying the mouth. The lining membrane of the follicles often presents numerous small cells or foveæ, which communicate with a common cavity, and in many situations the

*E. H. Weber, ueber die structur einiger conglomerirten und einfachen Drüsen. Meckel's Arch. 1827, p. 271.

crypts are so closely clustered together as to impart to the membrane a reticulated appearance. This is seen between the tongue and the larynx, and in the larynx itself and the trachea of some animals, as the *Testudo myda*, &c. The mucous crypts occasionally exhibit the character of prolonged tubes, but never to the same degree as the follicles of the skin of some fishes.

The following is the order in which the simple follicles are disposed to form the conglomerate glands:

1. The glands are formed by a simple aggregation of follicles, each utriculus of the latter communicating with a single cavity, which has but one outlet. These may be denominated aggregate follicles. They are either

a Linear, as in the Meibomian glands and the salivary folliculi of some birds.

b Or disposed in clusters, (acervatim disponita,) as in the intestinal glands, called glands of Peyer, or in those which are situated behind the ears of some amphibia.

c Finally, glandulæ aggregatæ, investing the whole membrane, and forming a stratum between the mucous and muscular tunics, as in the ventriculus succenturiatus of some birds, in which the tubuliform follicles, disposed in a perpendicular direction as regards the face of the membrane, are very closely crowded together.

2. The glandulæ conglomeratæ are formed from the simple, in the same manner that a simple follicle is formed by a continuous membrane, viz. by multiplied prolongations, which, whether they be crypts, sacs, or tubes, communicate with the intestine by a common orifice. By this arrangement, the internal surface of each, which is subservient to the office of secretion, although apparently inconsiderable, is sensibly greater than would be the surface of the membrane without such a disposition. Glands of this kind may be called compound follicles.

The internal secreting surface may be augmented in a twofold manner:

a By the cellular contexture occupying the circumference of the follicle, the outer surface of the utriculi retaining the simple form, as in the peptial glands of some species of mus, (*M. cricetus* and *M. rattus*,) and the glands of Cowper of certain animals.

b By the external increment or augmented evolution of the follicles, examples of which are furnished by the compound glands of the tongue, the tonsils, and the gastric glands of the beaver, &c.

3. The glandulæ conglomeratæ, even without any confluence of excretory ducts, may be closely aggregated, as in the stomach of the beaver, &c., in which they are disposed in clusters, like the femoral glands of the lacerta, and are collected in linear series, similar to the Meibomian glands of man.

4. In whatever manner this increase of the internal secreting surface is secured, whether by the second, third, or fourth arrangement, an internal branch of an excretory duct arises from it, which communicates with the ramuli, terminating in other follicles or cells—the

glandulæ compositæ, nevertheless, may have their magnitude increased by this species of aggregation, without any communication between the excretory ducts of the different follicles, as is the case with the prostate of the human subject.

Having thus indicated the evolution of the follicles, from their most simple type, Professor Mueller next proceeds to examine more particularly their arrangement in the several compound glands. He considers, first, the structure of those of the tongue, mouth, tonsils, stomach, and intestines.

1. *The lingual glands.*—These glands, both the simple and compound, have been carefully examined, by E. H. Weber. He ascertained, by means of quicksilver injections, that the glandular follicles which occupy the dorsum of the tongue, consist of a cluster of small round cells, opening by a minute orifice in the centre of the excavation, occupying the summit of the follicle. When the superficial glandular follicles of the dorsum of the tongue, previously injected with quicksilver, were isolated from the surrounding parts by dissection, a succession of small glands were exposed, from the bottom of which a moderate sized yellowish coloured, pellucid, excretory duct ascended through the substance of the organ. These ducts could be traced to the distance of a fourth or half an inch, where they were found emanating from small glands, composed of numerous compact acini, profoundly imbedded in the interstices of the muscular fibres of the tongue. Some of these glands measured .3 of a line in diameter. In many instances, the excretory duct, before it reached the glands, was observed to divide into numerous small branches, which, however, always sent minute ramuli into its substance. Some of the excretory ducts were observed to become more attenuated in the vicinity of the superfices of the tongue; and very often, by previously liberating them of the secreted fluid, they were so successfully filled by the injection, that the mercury even penetrated the excavations of the minute acini of the gland.

2. *The Buccal Glands.*—Glands similar to those just described, consisting of a cluster of minute lobes and acini, having an elongated ramified excretory duct, were also observed by Weber in the lips, cheeks, and trachea. The follicles of the lining membrane of the mouth, according to our author, present a singular conformation in certain birds. In the goose they consist of large elongated sacs, disposed in linear series, and closely clustered together, having numerous excretory ducts opening upon the mucous membrane by the side of the tongue. These orifices are so large as to receive readily the point of the mercurial injecting tube, and if the follicles be previously emptied of their secretion by pressure, they can be easily inflated with air, or distended with water. They were, however, never found exhibiting a cellular or locular arrangement. In the *Corvus coracus* the follicles are longer and more slender, but are disposed after the same manner: and in the *Gallinula chloropoda*, they consist of long tubes with a blind extremity, so arranged as to resemble the pectiniform branchiæ of a fish, and communicating with the mouth by a

series of foramina, disposed in a line nearly parallel with the margin of the lower jaw.

3. *The Tonsils.*—These glands consist of numerous recesses of the mucous membrane, in which are lodged many conglomerated mucous follicles. Besides the large utriculi, there are others of smaller size, which are still further subdivided into small follicles, as may be shown by inflating them with air.

We shall pass over the observations on the gastric glands, as they do not contain any thing new or important in relation to those of the human stomach.

In reference to Peyer's glands, our author remarks that they do not consist of clusters of follicles and ramuli, but of numerous foveæ and papillæ, disposed in patches, which are disseminated over the surface of the membrane. In the intestines of the domestic dog, he discovered, after the mucous membrane was detached from its connexions, an arrangement of papillæ larger than the villi, which were also very obvious. These papillæ, when viewed under the field of the microscope, seemed to be surrounded by a circle or corona, of minute foveæ, disposed with regularity, which were themselves circumscribed by a delicate sheath or embankment. The villi of the small intestines are so closely clustered together, that, occupying as they do, the situation of the glands, it is necessary to remove them, in order to show the texture of the latter.

In the third book Professor Mueller gives a brief description of numerous glands peculiar to different animals, as those which in some insects secrete an acrid fluid, the spinning apparatus of spiders, &c., the excretory organs of the mollusca, together with several glands possessed by different orders of vertebrate animals. As they are not found in the human subject, we shall not dwell upon this portion of the author's labours, but pass on to the fourth book, which treats of the collatitious glands of the genital organs.

The prostate gland of man is more complex, and differs considerably in other respects from that of most animals, except the canine and feline species, with which it is very analogous. It is well known that this gland has numerous foramina, opening into the urethra by the side of the caput gallinaginis. These foramina communicate with small excretory ducts, as may be shown by making an incision into the substance of the organ; and the excretory canals themselves terminate in cells in the substance of the gland. If the organ be divided, cells of considerable size can be discovered by the naked eye; and by the aid of the microscope many others of smaller dimensions can be discerned within the former, which are circumscribed by very attenuated membranous partitions. If a very fine tube be inserted into one of the divided excretory ducts so as to inflate it with air, it will be found that each tube terminates in closed cells or blind extremities, all of which will be rendered turgid as soon as the air is blown into the canal. While, therefore, the prostate is covered externally by a dense fibrous membrane, its whole internal substance consists of an

aggregation of minute arborescent tubes, with their terminal cells, the latter of which do not communicate with each other.

Cowper's glands, which are very small in man, are of large size in many animals, and exhibit considerable diversity of conformation.

1. Under their most simple arrangement, they present the characters of compound follicles. This is their conformation in man.

2. In some of the mammalia, the situation of these glands is occupied by small conoidal sacs, the fundus of which exhibits prominent laminæ, producing a kind of cellular arrangement. This is observed in the squirrel, according to Cuvier, in the *Arctomys Marmotta*, *A. Bobac*, and in the common hog.

3. In the *Castor Fiber*, or common beaver, Cowper's glands consist of a compact cellular arrangement, the larger cells of which receive the excretory ducts of those of smaller size.

4. In the *Viverra zibetha*, *Felis*, and *Hyæna*, they are, according to Cuvier, composed of lobules clustered together.

5. In the *Herpestiz Ichneumon*, a cluster of small vesicles is observed, which are united with each other, and open by a common excretory duct.

6. In the *Erinaceous Europeus*, in which Cowper's glands were overlooked by Cuvier, Mueller discovered them situated partly within the pelvis, beneath the pubis and the ascending ramus of the ischium, partly exterior to the pelvis, upon the inner side of the thigh. Their communication with the urethra was found remote from that of the other collutitious glands of this region. They consist of a great number of small, flat, pyramidal lobules, of a whitish colour, the apices of which were collected into fasciculi. Each lobule is composed of tubes, united by cellular tissue, and these tubes terminate by blind extremities in its substance.

In the *mammary glands* of man and the larger mammalia, the commencement of the lactiferous tubes consists of minute vesicles, appended to the small peduncle furnished by the excretory tube, like a cluster of berries to their stem, and united by cellular tissue. These minute cells, or acini, are grouped into small lobules, and as their excretory tubes unite to form others of greater size, larger lobes of a secondary order are thus formed, which in their turn, by a similar arrangement, give rise to ternary lobes, until, finally, the more minute ramified tubes are collected into the large common lactiferous ducts, which either communicate with a sinus within the nipple, as in the ruminantia, or open upon several isolated papillæ, as in the human subject, and some other mammalia.

This description differs in no essential particular from the explanation of the mammary glands previously given by Cruickshank, Mascagni, and J. F. Meckel, quoted by Professor Mueller.

The *Meibonian glands* are described as elongated sebacious follicles, closely clustered together between the tarsal cartilages and the palpebral portion of the conjunctiva. In the dog and calf, Professor Mueller found them simple and undivided, even to their blind ex-

tremities—there being no perceptible cellular or locular arrangement. In man, however, they are much longer, and present an uneven arrangement of cells and acini upon their inner surface. Some of them are, besides, divided in the vicinity of their blind extremity. This structure is beautifully displayed by injecting the Meibonian glands with quicksilver, as was practised by Professor E. H. Weber. When thus prepared, especially in the fœtal subject, cells and acini are observed, thickly disseminated over the surface of the follicles, like a cluster of grapes, upon which they exhibit a sessile arrangement, the cells and acini having no peduncles.

Lachrymal glands.—As it is extremely difficult to inject the excretory ducts of the lachrymal glands with quicksilver, the author made his observations upon these organs in the fœtus of a sheep, which measured four inches from the vertex to the anus. When the gland was examined under the field of a microscope, the ramifications of the excretory ducts could be seen presenting a simple arrangement in the soft and delicate substance of the organ, and opening upon its surface. Each branch, however, divided into other short ramuli, which terminated in one or more blind or closed vesicles, of larger dimensions than the excretory tube communicating with it. All the ramuli and vesicles were white and transparent, as in the salivary glands. The number of the terminal vesicles, however, compared to that of the ramifications of the excretory ducts, was far less than in those glands.

Salivary glands.—Professor Mueller has furnished a very interesting and elaborate description of the developement and structure of the salivary glands in the several classes of animals. Our observations must be restricted to his remarks on these glands in the mammalia. Besides the observations of our author, others of a very interesting character have been published on the same subject by Professors Weber and Rathke—the first in Meckel's *Archives für Anatomie und Physiologie* for 1827, the latter in Burdach's *Physiologie*, Bd. II.

The parotid gland of a fœtal sheep, which measured two inches from the vertex to the anus, was observed to consist of whitish semi-pellucid canals, which extended in an arched direction towards the ear, and divided at their extremities into numerous short ramuli scarcely inferior in size. Of these branches a part terminated directly in simple turgid vesicles; while others, after being divided and subdivided into other branches, presented the same arrangement. Upon some parts of the common excretory tube small eminences were perceptible, which were the rudiments of branches just beginning to form; in other situations the vesicles were observed to be already attached to the main branch by a distinct peduncle or tube. The branches of the excretory duct were but slightly smaller than the trunk itself, and could be distinctly seen ramifying through the gelatinous pellucid circumambient substance. This primitive organic material, which Professor Mueller denominates *blastema*, was also noticed by Rathke, but was not mentioned by Weber. At a later period it becomes less pellucid, and is divided into roundish compressed lobules. The author

remarks that, "according to his observations, the primitive origin of the canals is not from the mucous membrane of the mouth, but by a species of vegetation taking place in the substance of the *blastema* itself."

The excretory canal is at first simple, short, and undivided; subsequently it becomes more prolonged and ramified, the number of branches increasing progressively, and approximating more nearly as they multiply. Hence, the simple protuberances which are observed at first along the course of the tube are prolonged into vesicular peduncles; from these new eminences and vesicles spring up; and finally, all the peduncles and ramuli terminate in vesicles of dimensions somewhat greater than those of the tubes themselves.

In another sheep embryo, of four inches in length, the ramified arrangement of the excretory ducts was very handsomely displayed. The parotid gland was in this observed to consist of numerous flattened lobules, composed of the simple organic matter, or *blastema*; more dense, however, and less pellucid, than in the preceding specimen. Examined with the microscope, the excretory duct was observed divided into long whitish coloured canals. In the interior of the gland numerous lateral branches, of nearly equal size, proceeded from these, each of which plunged into a lobule, into which it distributed branches scarcely smaller than itself. These new branches gave origin to other peduncles within the lobule, each of which was observed to terminate in an enlarged blind end or vesicle. The author remarks, indeed, that the arrangement is here the same that is observed in the termination of the bronchial tubes in the substance of the lungs, except that in the latter the distribution of the ramuli in the lobules of the blastema is slightly different.

When examined under water by the aid of the microscope, numerous small blood-vessels were observed following the course of the branches of the excretory tubes, and distributing a multiplicity of minute ramuli upon the surface of the lobules, as well as in their interstices. Their tenuity, contrasted with the size of the cæcal ends of the excretory tubes, was very remarkable; and their most minute divisions did not attain the vesicular ends of the tubes, but seemed to be destined more particularly for the nourishment of the circumambient blastema, or elementary organic substance, in the midst of which, according to the author, "the salivary canals germinate, as if by a new and peculiar mode of growth."

The author adopts the sentiments of Professor Weber in relation to the intimate texture of the salivary glands of the human fœtus. This distinguished anatomist remarks that the excretory duct of the parotid gland exhibits an arborescent arrangement, but that its final ramifications are much larger than the finest blood-vessels. They do not anastomose, but each ramulus terminates in a cluster of cells, which are so closely grouped together, that there often seems to be but a single excretory tube for several cells, which unites with the duct pertaining to the same cluster to form a canal of larger size. In the smallest cells in which an excretory tube can be discovered, it is

generally very short, and not much smaller than the cæcal end, or vesicle, in which it terminates. He ascertained by careful micrometrical observations, made under different degrees of magnifying power, that the medium size of the cells, or cæcal ends of the excretory tubes, was 0,0099, or nearly $\frac{1}{100}$ of a Paris line—$\frac{1}{1200}$ of a Paris inch. They are, therefore, three times the size of a blood globula, which is estimated at = $\frac{1}{3000}$ to $\frac{1}{4000}$ of an inch in diameter, and consequently, are as much larger than the smallest sized blood-vessel, which is only capable of giving passage to a single globule of blood.*

Professor Mueller concludes, from all his investigations on this subject, that the salivary excretory ducts in the various vertebrate animals and in man, terminate in cæcal extremities; that they have no continuity with the blood-vessels, and that the smallest of them are considerably larger than the microscopical ramusculi of the sanguiferous vessels.

The pancreas.—The analogy between the structure of the salivary glands and that of the pancreas has long been noticed by anatomists. It has been fully demonstrated by Professors Weber and Mueller. The former of these gentlemen readily succeeded in filling the excretory duct of the pancreas of the goose and its most minute ramifications with quicksilver, even to the ultimate termination of the radicles in the substance of the gland. He was thus enabled to demonstrate that the main duct divided into numerous branches, then into minute ramuli and ramifications, the ultimate divisions of which terminate in an infinity of vesicles, so closely clustered together that the communication of the ramusculi was concealed by them. The cells were not only variable as to size, but also in configuration—some of them being irregular and angular, but always larger than those of the parotid gland of man.

Mueller did not at first succeed so perfectly as Weber in injecting this gland with quicksilver; but finally, after filling the main duct with mercury in the usual manner, he adapted an Anel's syringe, charged with water, to the tube, and by pressing the piston gently down, he was enabled to force the metal into the ultimate terminations of the excretory duct with great facility. He even found that they were capable of sustaining considerable force applied in this manner without giving way. When, however, the piston was urged too strongly, a small quantity of mercury passed into the veins by rupture of the parts. This experiment, which was also performed upon the pancreas of a goose, furnished nearly the same results as those just mentioned as having been obtained by Weber. The vesicles, when filled with mercury, were so large as to be readily distinguished without any magnifying power. The minute ramusculi of the excretory duct, which were most intricately clustered around the main trunk, were also of considerable size; and when measured by Fraunhofer's micrometer, were found to be equivalent to from 0,00137-0,00297 of a Paris inch in diameter.

* Meckel's Archives für Anat. und Physiol., 1827, p. 277.

In the same sheep embryon upon which the investigations in relation to the salivary glands were conducted, numerous free elementary particles were seen disseminated through the substance of the pancreas, the primordeal matter or *blastema* of the gland being scarcely perceptible. They were found to consist of elongated cylinders or sarmentose utriculi, which were larger than the pedunculated vesicles of the salivary glands, and so closely clustered together that they formed a paniculated arrangement disseminated over the whole surface of the organ. Here and there these elementary cylinders or utriculi were seen to send forth an intermediate one; in other places they formed pinnatifid panicles, as in the pancreas of birds. They were all perfectly white, without peduncles, and terminated by a blind extremity, slightly enlarged. In some of the panicles three, four, or five branches or offsets could be counted; while in others, if more were present, they were concealed by the adjacent panicles.

Rathke, whose opinions are quoted by Professor Mueller, describes nearly the same arrangement as having been observed by him in the examination of this gland in the fœtal state. "The branches of the excretory duct," says he, "present the same arrangement as in the salivary glands, except that they do not run in the same direction, diverge less, and are longer than in those organs."

As the developement increases, the minute ramuli gradually approach and form very delicate lobules of about half a line in diameter, which are generally separate from each other, and present something of the figure of a cabbage leaf. These are divided into lobules of smaller size by superficial furrows traversing their surface, all of which are very loosely united, except by the minute ramusculi of the excretory duct upon which they are surmounted, like a leaf upon a tree. These elementary particles could be no longer discovered in the fœtus of a sheep measuring one foot.

In the *marmotte* (*Cricetus vulgaris.*, Cuv.) the pancreas was found to be composed of an infinity of minute lobules, very loosely united, being chiefly tied together by their efferent excretory ducts to form lobes of larger size. The alimentary particles exhibited nearly the same appearance as in the salivary glands, except that they were smaller by one-half. Each lobule could be resolved into the minute fasciculi constituting its elementary parts, and had a small blood-vessel penetrating its centre, which distributed its ultimate branches to the elementary fasciculi composing the excretory duct.

The liver.—The observations of our author on the structure of this gland are elaborate and highly interesting. Owing to their extent, however, we can only afford space for some of the leading points of the anatomical arrangement of the liver in the vertebrate animals, passing over entirely the peculiarities presented by this organ in the inferior classes.

Amongst the amphibia, Professor Mueller found the liver of young water-salamanders best adapted to his investigations, on account of its flattened attenuated arrangement and its great transparency. He

furnishes the following very interesting remarks in reference to the circulation in this gland.

"In the spring of 1829, having opened the abdomen of a young larva of the Triton palustris while alive, I observed a large ascending sanguiferous vessel, in which the undulatory motion of the circulating blood could be readily discerned with the naked eye. The same motion could also be distinguished in the venous branches distributed by this vessel into the substance of the liver, in each of which the course of the blood was directed towards the heart. But I was most agreeably surprised when under a bright solar light I examined the parts with a simple microscope, composed of three lenses. I could then observe distinctly the motion of the blood in the most attenuated of the superficial vessels, which were so small as to be only permeable by a single globule of blood. By means of the simple microscope the streamlets, composed of a train of single globules coursing along these minute vessels, and the entire circulation of the blood, were rendered as distinct, or even more so, than by the compound microscope."—The appearance observed is very beautifully represented in tab. x. fig. 10.

The substance of the liver was remarkably soft, of a light colour, inclined to red, not unlike the white of an egg. It was composed of elongated acini, diversely arranged, analogous, however, to those observed in the embryo of birds, having an elongated sarmentose appearance, except that in the latter, they are more conspicuous, and project out more distinctly.

The following is the description given by the author of the circulation of the blood between the acini.

"The interstices of the clusters of elongated acini were every where seen, permeated by minute streamlets, only large enough to give passage to a train of single blood-globules. These streamlets communicated to form others of greater size, and successive confluences were thus observed to take place, until they all terminated in trunks, which opened into the side of the vena cava at acute angles. Numerous small trunks of the hepatic vein, communicated with each side of that portion of the vena cava which passed over the surface of the liver.

"But that which most deserved to be remarked was, that the single blood-globules distinctly seemed to circulate in the interstices of the clusters of acini, and even between the elongated acini themselves, independently of any manifest vascular membrane or tunic. This was observed in the margin, and upon the inferior surface of the liver where the streamlets proceeded from the ramifications of the vena portæ; and such was the appearance presented, that series of dicurrent globules seemed rather to present themselves to the eye, than the proper streamlets themselves. It might indeed be inferred from this appearance, by those disposed to believe in such an arrangement, that in the interstices of the acini, the streamlets of blood globules are not surrounded by a proper vascular tunic. This however, is not my opinion, since numerous investigations have convinced me that the smallest streamlets, if devoid of proper membranous parietes, have, even in the glandular organs, a kind of boundary, furnished by a thick or more spissid substance than the blood. This much, at any rate, can be satisfactorily discovered by any one who will examine the subject on these small animals:—that the globules of the blood circulate in the interstices of the acini, and escape on each side from between them"—

The author subjoins to these statements, the following results of his observations, on other points pertaining to this part of the circulation:

"1. That the blood of the vena cava, and the hepatic veins, is propelled by one impulse, which is isochronous with the contraction of the left ventricle of the heart.

"2. That this impulse does not, in anywise, change the diameter of either the vena cava, or the vena portæ.

"3. That no difference of colour is distinguishable in the blood of the vena cava, hepatic vein, or vena portæ"——

Gruithuisen has described the acini of the liver of frogs, and the circulation of the portal blood in their interstices. The acini, he remarks, exhibit a racemose arrangement, and are so disposed as to swim in the portal blood. The capillary portal vessels, however, which convey this blood, do not penetrate the acini, but traverse the interstices of their bodies, so that the blood moves between them, as it would through a heap of peas. It is only after the fluid has passed entirely through these interstices, that it enters the capillary veins of the racimose cluster, by which it is conveyed from the liver to the vena cava.*

Professor Mueller, notwithstanding he made numerous attempts upon frogs of all ages, was never able to observe the circulation in the liver, under the microscope; and the same want of success seems to have attended the efforts of Kaltenbrunner. He, however, denies that the elementary acini exhibit the racemose arrangement described by Gruithuisen, and asserts, that in all the vertebrate animals, they consist of mutic cylindrical bodies, such as have been described above in the young salamander.

Finding it impossible to determine the character of the intimate structure of the liver, in the more perfect animal, by means of injections, our author determined to make an effort to attain this knowledge through a different channel;—the study of the fœtal developement, and especially, the changes which are observed during the process of incubation. He, therefore, first quotes the results obtained by Professor Baer by this course of investigation, and then adds the conclusions which he has deduced from his own researches.—The following are the observations of Professor Baer:

"From the flocculent vascular covering of the alimentary canal, are formed, in the course of the third day of incubation, the lungs, the liver, the pancreas, the cæcum, and the bladder. The liver first appears about the middle of the third day, in form of two hollow pyramidal branches, or prolongations, of the alimentary canal, which are surrounded by the accompanying nervous branch, and communicate by their base with the alimentary canal. Scarce has the vein twined itself about these pyramids, when it becomes elongated upon the adjacent portion of the vascular layer, and ramifies upon it in such manner, as constantly to secure a superfluity of muscular membrane in advance of the pyramids, the projecting parts assume, as the alimentary canal elongates and becomes narrower, a lamellated arrangement, closely sheathing the vein. The apex of the projecting cone is seen within these laminæ, while the base gradually contracts, and assumes more of the cylindrical form. The ramifications of the vessels present the appearance, under the microscope, of a dark vascular figure, situate within or between the laminæ.

"So soon as the elongated cones, which are destined to become the future gall passages, begin to assume a cylindrical form, a slight eversion takes place between them, which, however, increases so slowly, that at the end of the third day, it scarcely reaches the middle of the thickness of the muscular membranous sheath, and forms a projection so slight, that it can scarcely be perceived. The inner granulated surface, however, already indicates some traces of a vascular arrangement along the edge, which, nevertheless, has more the appearance of mucous follicles.

* Beiträge zur Physiognosie und Eautognosie. München 1812, p. 159.

"By the fourth day, the vascular sheath assumes a still softer and more flocculent condition upon the portion of the alimentary canal already formed, and resembles a thin, half transparent jelly. The liver presents itself under the forms of two flat bodies, which, like plates, are surrounded by the vena portæ. In these plates, both gall ducts are extensively ramified, which are at the same time more drawn out from the intestine, so that they thus become narrower at the base, and by the end of the day assume more of the character of a perfect canal. Their inner surface is granulated, like that of the intestine, and between them, a vein pursues its course to the liver.

"By the fifth day the liver becomes much more conspicuous. Both lobes are thicker, and seem to possess an interior spongy texture. A closer examination shows that the vein, coursing between the gall ducts, has already branched extensively through its substance, and that the gall ducts themselves, have become united into one common trunk.

"On the sixth and seventh day, it is found to receive a copious supply of blood, and is of as deep a colour as the auricles of the heart, when filled with that fluid.

"The gall bladder becomes manifest on the eighth, ninth, and tenth days."*

To sum up the whole, it may be stated, that according to this view, the liver is formed by an eversion of the mucous membrane of the alimentary canal, taking place within the vascular stratum which surrounds this tube, by which two hollow cones, communicating with the canal, are formed. These cones finally coalesce at the base, but being constantly drawn out at this point from the intestine, their openings, which were at first double, finally become fixed into one.

In reference to the opinion expressed by Professor Baer, that the liver has its origin in a double eversion of the alimentary canal, our author remarks, that it is fully confirmed by his own observations. That which was observed by Baer, however, on the third day, he did not witness until the fourth. The everted portion of the intestine had at first nearly the same thickness as the other portions of the tube; but it soon became more tumid, notwithstanding the cavity within remained.

After the fourth day, the sulcus dividing the eversion was inclined more laterally. The liver seemed to consist of a cluster of small round pearls, hollow within, the walls of which were already thicker than those of the intestines. At the point at which the intumescence forming the rudiment of the liver was divided by the sulcus, a thin membranous process of the intestine was continued entirely through the furrow, so that the liver was tied closely to the tube, in such a manner, however, as to receive a process of the intestine between its two segments. The substance of the liver upon the surface, presented the appearance of small acini, clustered together like minute pearls.

"Having incised this substance, I was enabled to recognise the internal cavity. The crusted portion of the tube was every where tumid, except the small slender slip destined to form the hepatic duct, which was prolonged between the two granulated segments of the liver; this was very thin. The walls of the excavated liver were, therefore, white; but the walls of the intestine, naturally not perfectly diaphanous, appeared black on the object glass of the microscope."

About the end of the sixth day, the walls of the intestine were thicker, and their lumen was diminished. The liver reposed closely upon the tube; therefore, the prolongation of the intestine upon the

* Baer, in Burdach's Physiologie Bd. II. passim.

gland could be no longer reorganized, it being concealed by the substance of this latter organ. The liver itself presented the appearance of a small excrescence, attached to the side of the intestine—excavated, however, at the base, where the cavity was visible, now exhibited an arborescent aspect, the smaller cells communicating with others of larger size. The rudiments of the bile ducts were observed on the surface, perfectly free, but closely clustered together.

"It is thus manifest," observes our author, "that the liver has its origin, primarily, as was asserted by Professor Baer, in an eversion of a portion of the walls of the intestine, the cavity of which, at first large in relation to the thickness of the membranes, afterwards becoming smaller, retracts at the base, and as the walls become tumid, assumes a ramified, cellular arrangement. The substance of the liver itself, formed upon the tumid crusted portion of the intestine, is divided into elongated prominent acini, which are directed towards the inferior cavity, but are at first not themselves hollow."

The author next proceeded to investigate the formation of the bile ducts, and the manner in which their radicles terminate in the substance of the gland.

In the mature embryo of a bird, he found, by examining the liver under the microscope, that the gall ducts consisted of free cylinders, ending in mutic, or capitate extremities. At every point upon the superficies, minute, elongated, miliary bodies, of a whitish, or yellowish colour, were seen emerging from amidst the circumjacent sanguinolent substance. These bodies were observed by Malpighi, and were by him described under the appellation of the oblong utricular, or cæcal appendages of the hepatic duct. They are at first indistinct, but in proportion as the process of organization advances in the midst of the homogeneous elementary matter (*blastema*) their free and blunt extremities become more and more manifest. When they first make their appearance, they are short, rounded, capitate, or tumid at their extremities, and their intimate connexion cannot be unravelled. In a short time, however, they can be more easily traced, and by the aid of the microscope, can be seen to be intimately associated by excretory tubes, or ramuli, with which they communicate. The free cæcal extremities of these tubes, our author remarks, project more or less upon the surface of the liver in birds, during the entire period of incubation which elapses after they become apparent. By an extensive series of investigations, he found, that in proportion as they vegetate, or become prolonged in the midst of the elementary substance of the liver (*blastema*) they assume a clustered arrangement, and become disposed into small leafets of variable configuration, most of which, however, are pinnatifid, or deeply gashed upon the margin. In the embryo of a species of *Garrulus*, of an inch in length, he found, by micrometrical admeasurement, that the diameter of these rudimentary radicles of the hepatic duct, was 0.00172 of a Paris inch, while that of the smallest capillary blood-vessel of an adult, is 0.00025 to 0,00050 of a Paris inch.

It is apparent, from the foregoing statement, that the excretory

ducts of the liver are formed in a manner totally different from that in which those of the salivary and other glands are enveloped. In the latter, we find as the first condition, a primordial blastema, or homogeneous gelatinous matter, disposed in lobules, in the midst o which the tubes are subsequently formed. They are primarily simple solid cylinders, and it is probably, as Professor Rathke represents to be the case with regard to the formation of the minute bronchial tubes in the lungs of the embryo, by a process of secretion, or a complete liquefaction of these cylinders, that they are eventually transformed into canals. In the liver, on the contrary, the element of the excretory ducts is found by an eversion and prolongation of a portion of the walls of the intestine, which finally assumes a branched or ramified arrangement, in proportion as its cavity becomes diminished. All these ramifications, therefore, are essentially so many portions of the mucous membrane of the intestine, terminating in small cæcal extremities, upon which the blood and lymphatic vessels ramify.

Numerous investigations were also made upon the embryo of several species of mammalia—especially the common squirrel, the *Cricetus vulgaris* (marmotte) and the *Cavia cobaia* (Guinea pig). In these, the elementary parts were not so easily recognised as in birds: yet in the common squirrel, they were very distinct, and presented themselves in form of simple cylinders, corresponding to the rudimentary arrangement of the hepatic duct. They terminated in simple, capitate, or rounded cæcal extremities, which were clustered into beautiful leafets, as described above. It will not be unnecessary, however, to enter into a minute description of the various modifications they presented, since the fundamental arrangement was in every respect conformable to what has been already indicated, as that which represents the primitive condition of the liver in other animals.

Leaving this subject, we shall next follow the author in his investigations of another topic of very great interest; the arrangement of the blood-vessels of the liver. He has reduced his opinions upon this topic to eight distinct heads, which we shall give in as condensed a form as possible.

1. It is generally supposed that the hepatic artery, being a nutritive vessel, distributes its ramifications in form of a plexus upon the trunks and branches of the other vessels. Many of its minute branches, however, can be seen distributed to the surface of the liver, beneath the peritoneal coat. Many ramifications of the vena portæ also approach the surface of the liver; but it mostly follows the divisions and subdivisions of the hepatic duct in its distribution. Its branches are besides more conical than are those of the arteries; and they are so singular and sinuous in their course—forming such abrupt curves—that it is difficult to distinguish the trunks from the branches. Its ramifications seem to be appropriated peculiarly to the substance of the liver, or the ramifications of the hepatic duct, the divisions of which they accurately follow, and form an intricate vascular plexus upon their surface.

2. In the embryo of birds, and especially in those mammalia in which the extremities of the bile ducts can be recognised upon the

surface of the liver by the aid of the microscope, the ramifications of the vena portæ can be distinguished running between the branches and ultimate ramifications of the excretory ducts.

3. The most minute capillary blood-vessels are much smaller, and more delicate, than the primary radicles of the hepatic duct.

4. In the embryo of birds, as well as in the larva of salamanders and frogs, the finest capillary blood-vessels are not distributed upon the parietes of the excretory ducts, but course along the interstices of their racemes and twigs. Never, says our author, have I been able to observe the least vestige of a sanguineous vessel upon the free projecting white or yellowish extremities of the gall ducts, or the cylindrical acini.

5. The ultimate arrangement of the blood-vessels in the liver consists of a delicate vascular plexus of vessels, conveying blood to and from the organ, all of which communicate freely, while none of them can be discovered terminating by free extremities.

6. That the ultimate vascular net-work of the liver is formed by the mutual conflex of the ramifications of the hepatic artery, the vena portæ, and the hepatic vein, is proved by injections passing from the one into the other, and by inflating these vessels with air, when the same phenomenon takes place.

7. The minute capillary net-work of blood-vessels has no distinct communications with the free extremities of the radicles of the excretory duct. This is fully demonstrated by the preceding investigation of these parts in the embryo of birds, salamanders, &c. The vascular plexus merely fills up the interstices between the tubes, or cylindrical acini, and in the larva of the salamander the streamlets of blood can be seen permeating between these bodies, in vessels so small, that they are only capable of transmitting a single train of globules. As to the assertion so often reiterated, that the matter of injections sometimes passes from the blood-vessels of the liver into the excretory ducts, Professor Mueller very properly attributes the occurrence to accidental rupture of the intervening tissue, and remarks, that such an experiment is too rude, to justify any deduction being made from it in favour of a communication between these parts.

8. The existence of two different kinds of substance in the liver, the one denominated medullary, the other, although admitted by Autenreith, Bichat, Cloquet, Mappes, and J. F. Meckel, our author affirms cannot be demonstrated, either by the study of the evolution of this organ in the embryo of amphibia or birds, or the examination of the adult liver by the aid of the microscope. The dark appearance to which the term cortical substance has been applied, is nothing more than the delicate net-work of blood-vessels which occupies the interstices between the extremities of the excretory ducts, while the light colour is referable to the latter themselves,

The Kidneys.—Professor Mueller has treated the structure of the kidneys somewhat extensively; and in advancing his own opinions, has taken due notice of the labours and sentiments of his predecessors. We shall pass over his description of the texture of those

organs in the invertebrate and the inferior vertebrate animals, confining our attention to what he has advanced in relation to the kidneys in the mammalia, and in man.

He remarks that the singular bodies denominated *corpora wolffiana*, which take precedence of the kidneys in the embryo of birds and the amphibia, and which were mistaken for these glands by Dzondi and others, also exist in the embryo of the mammalia. They consist of very slender, delicate, cæcal prolongations of the small intestines, as in birds, and in very young embryii are larger than the kidneys. Subsequently they become intimately connected with the testicle, so that it is difficult at that period to separate these three organs; yet they are always distinct from the supra-venal capsules. They are, however, more intricately connected with the developement of the genital organs.

The kidneys in the very young embryo of a sheep are of a rounded configuration; and their intimate texture, viewed with the microscope, is seen to consist of minute fasciculi of vessels, pellucid in the middle, which advance in an arched divergent course from the hilum of the gland towards its periphery. They are tortuous at different points, and terminate gradually in vesicles of larger size, evidently hollow, which present the appearance of being supported on pedunclcs: this appearance was observed in the kidney of one line in length, of the embryo of a sheep.

This description corresponds very nearly with the following, given by Rathke:—

"The uriniferous tubes," says he, "are at first extended in form of straight lines, and are collected into bundles or fasciculi, which converge towards the hilum of the kidney by their inner extremities, where they communicate with the ureter; while in the opposite direction they diverge like radii; and in the periphery of the gland terminate in small blind extremities slightly enlarged, analogous in their appearance to the termination of the small bronchial tubes in the substance of the lungs. In proportion as they increase in length, which they do more rapidly than the gland augments in size, they become folded and convoluted upon themselves. For some time these tubes are large in proportion to the size of the kidney, but they finally become relatively smaller, especially in the extent of their outer convoluted portion, since the portion which retains the original thickness, tends to stretch them still more: they also become more numerous as the developement increases, and the straight portions of them are disposed in convergent fasciculi, to form the pyramids of Ferrein."*

The cortical substance is gradually superadded to the convoluted extremities of the tubes; and according to both Rathke and Mueller, minute lobuli, which do not exist at first, subsequently make their appearance upon the periphery of the kidney in the mammalia.

The intimate texture of the kidneys having been investigated with great care by Schmulansky, Eisenhardt, Huschke, and Doellenger, our author proceeds to give a summary of their opinions, previously to stating the result of his own labours.

Schmulansky prosecuted his investigations by filling the blood-vessels of the kidney with minute injection beneath the exhausted receiver of an air-pump, and inflating the uriniferous tubes with air.

* Burdach's Physiologie als Ehrfahrungswissenschaft, Bd. II. p. 573.

He represents that each minute foramen upon the small foviola of the papillæ, communicates with a single dense tube of six lines or less in length, which divides into two small cylindrical tubes—these, after passing a short distance, subdivide into two others without losing much of their diameter, and sometimes even retaining the original size. In this manner they advance, presenting a dichotomous arrangement, having their branches doubled, and then multiplied to a greater extent, and all united with each other, even to the papillæ, by loose cellular tissue: thus increased in number by these successive divisions, the branches are collected into one or two fasciculi, which are completely surrounded by blood-vessels. Each fasciculus thus formed pursues its course to the vascular plexus, corresponding to the outer portion of the kidney, when the tubes composing it, still united with each other, cease to divide, but each one winds its way into the cortical substance, receding from its fellows, and becoming variously folded and convoluted upon itself. This serpentine portion of the tubes forms numerous gyrations, but does not become very much elongated. In pursuing this tortuous arrangement, the tubes retain their original diameter and their white colour. Schmulansky has represented them as terminating in the small granular bodies described by Malpighi, which occupy the cortical substance of the kidney. This, our author thinks, is an error, resulting from the method in which he conducted his investigations. These bodies, (*corpora Malpighiana, glomeruli vasculosæ*) he represents are always larger in the recent kidney than the uriniferous tubes, and are filled when the blood-vessels are injected, to which they are appended like an apple to its stem. Professor Mueller asserts that there is no connexion between these bodies and the uriniferous tubes, but that the latter, on the contrary, end by free mutic extremities. In other respects, he thinks the observations of Schmulansky are in accordance with truth.

Eisenhardt conducted his researches by placing very thin slices of the kidney under the field of the microscope—a method which our author considers highly objectionable, and altogether inadequate to furnish any accurate results. He, however, described very accurately the connexion between the blood-vessels and the corpora Malpighiana, and also discovered that their bodies were always filled when the minute blood-vessels were minutely injected. This he was able to demonstrate both in the recent kidney and in the beautiful injected preparations of Leiberkuhn. He likewise remarks that the glomeruli of Schmulansky are the same as the bodies erroneously described by Malpighi, and which the latter author very correctly represented as being appended to the small arterial ramifications, like fruit upon its stem. Professor Mueller, however, contends that the vascular plexus occupying the cortical substance of the kidney, which he described as the vessels destined to secrete the urine, were nothing more than the net-work of sanguinerous capillaries, which are every where extensively distributed in this portion of the gland in the interstices of the proper uriniferous tubes.

The principal item in Doellinger's investigations that deserves to be noticed is, the opinion expressed by him that there is a direct continuity between the blood-vessels and the uriniferous tubes. This inference is predicated upon the passage, as he supposed, of the matter of injections from the one set of vessels into the other. This Professor Mueller affirms never takes place; but he states that the blood-vessels which occupy the interstices of the ducts of Bellini, and which run parallel with them, may thus become easily filled, and under such circumstances be mistaken for those uriniferous tubes. Such a mistake, he represents, might be easily made on inspecting the finely injected preparations of Lieberkuhn, and had actually been committed by some, as well in the examination of these specimens as those of Prochaska and others.

The observations of Huschke* deserve a more particular examination. By adopting a method of procedure far more advantageous than any known to his predecessors, he was enabled to completely inject the uriniferous tubes to their origin, and thus demonstrate, more satisfactorily than had been done before, the nature of their relations with the other structures of the kidneys. This was accomplished by injecting the gland under the exhausted receiver of an air pump; and for this purpose he found the kidney of the horse superior to that of any other animal.

We shall translate Huschke's exposition of his opinions from the German, as expressed by himself, adding such of Professor Mueller's comments as deserve to be mentioned.

"The canals of Schmulansky commence under the name of the tubes of Bellini, from the papillæ of the kidney, whence they proceed in every direction in right lines, arranged in cones, dividing and subdividing as they advance. The tubes of Bellini, having reached the limit of the undulatory substance of the kidney, become more divergent, but are still more distinctly than before arranged in perpendicular bundles (*pyramides Ferreinii*) which character they retain until they reach the superficies of the gland; here they assume a contorted, serpentine arrangement—are inclined more downwards—and running for some distance in the tortuous course, gradually diminishing in size, they become lost in the cortical substance, without communicating with the corpuscula Malpighiana. In some cases, it is true, one of these tubes could be seen coursing over the surface of one of these small bodies, but I could never detect any communication between it and the body, or one of the small arteries composing the latter."

Upon this, Professor Mueller remarks that Huschke is mistaken in representing that the serpentine, uriniferous tubes insensibly lose themselves by becoming small; they, on the contrary, retain the same diameter to their termination, and end in free cæcal extremities. He remarks, moreover, that in the kidney of the horse, the cortical substance is composed of tubes which are nearly straight or slightly undulatory, which having reached the superficies of the gland, assume a divergent and serpentine arrangement. In other animals, however, nearly the whole of this substance is composed of many tortuous, serpentine tubes.

Huschke continues, "the papillæ of the kidney does not present the same structure in all the mammalia. While in some the conical calyx of medullary substance projecting into the pelvis of the kidney, forms the origin of the tubes of Bellini, there is in others a small evacuation at the same point from which the

* Ueber die Textur der Nieren. Isis, 1828, p. 560.

tubes proceed. In others, again, the conical summit of each papillæ presents a small depression, corresponding to the orifice of the tubes of Bellini (*Calyx minimus*) the first arrangement exists in the human kidney; the second is found in the horse, the heart-shaped kidney of which seems to consist of but two tubes. The pelvis in the kidney of this animal is extended longitudinally within the concave edge of the gland, and each lobe is supplied with a canal, the end of which presents a small, soft, projecting, conical papilla, upon which the tubes of Bellini open. Many of these openings are so distinct that a fine probe may be introduced into the tubes communicating with them, and notwithstanding the great thinness of the walls of the latter, they may be separated from each other without laceration. The portion of the medullary substance of which these papillæ are composed, is abundantly supplied with blood-vessels, and the openings of these tubular papillæ are supplied with a net-work of fine convoluted vessels. It is probable, indeed, that their walls are formed by vessels, and that they are held together by a soft homogeneous substance, since they can be separated from each other without lacerating the injected blood-vessels, and the whole arrangement of the papillæ may be compared to a porous sponge.

Professor Mueller remarks that the ducts of Bellini are so large in the papillæ of the horse's kidney, that they can easily be filled with injection by merely inserting the pipe in the ureter, when the tubes will be beautifully filled through the whole of the medullary substance, showing a succession of dichotomus divisions in the tubes. This cannot, however, be done in the kidney of any other animal.

The observations of Huscke in relation to the corpora Malpighiana, are confirmatory of the sentiments of Schmulansky, viz. that they are filled by injections thrown into the arteries, and should be considered merely as a convoluted arrangement of small blood-vessels. This is shown by the examination of the delicate preparations of Lieberkuhn, which are preserved in the Anatomical Museum at Berlin, under the microscope. They show the interstices of the corpora Malpighiana occupied by a delicate plexus of minute blood-vessels, filled with injection, which consist both of arteries and veins. These bodies are indeed appended to arterial ramuli of larger size: they are nevertheless completely surrounded by this plexiform arrangement. Our author infers that this retiform plexus is formed by the termination of the arteries and the commencement of the veins—the one furnishing arterial, the other receiving venous blood. As to the blood-vessels of the medullary substance, Huschke agrees with Schmulansky in representing that they are disposed in straight lines, parallel with the tubes of Bellini, and that they do not present the serpentine arrangement observed in those of the cortical substance.

We have already stated Professor Mueller's sentiments in regard to the arrangement of the uriniferous tubes, so far as it is capable of being deduced from the investigation of the kidney in the embryo of animals. We shall now give the result of his researches, conducted by the aid of minute injections made beneath the exhausted receiver of an air pump, in the manner practised by Huschke. The following are the inferences deduced from the author's observations made upon the kidneys of horses thus prepared.

"In the medullary substance the canals are disposed in the manner represented by Huschke. They commence at the papillæ, in form of small tubes, 0.01305 of a Paris inch in diameter; but their bifurcations are smaller, measuring only 0.00189 of an inch. These tubes range in straight lines towards the cortical por-

tion, but within that substance their diameter still continues the same, no diminution of size taking place in that situation. The diameter was found to be from 0.00140 to 0.00188 of a Paris inch. In other respects the uriniferous tubes of the horse's kidney were found to present a singular peculiarity; for instead of the serpentine divergent arrangement of the canals, in which the straight fasciculi of tubes terminate in other animals and in man, and which occupies the whole of the cortical substance, they were found to reach even the outer superficies of this substance, presenting merely slight undulations. At that point, however, they became serpentine. This is beautifully exemplified in tab. xv. fig. 1. All these canals of the cortical substance were observed to present nearly the same diameter, notwithstanding many of them, after reaching the superficies of the gland, presented a dichotomus arrangement.

"The serpentine uriniferous tubes, when filled with injection, were so large as to be easily distinguished by the unassisted eye. Examined carefully with the micrometer of Fraunhofer, their diameter was found to be from 0.00137 to 0.00182, being therefore four or five times larger than the smallest capillary blood-vessel of the kidney, the diameter of which was observed to be 0.00037, and about one-third the size of the seminiferous tubes of the male testicle, which, according to measurement, is 0.00470."

In no case did the matter of the injection pass from the uriniferous tubes into the corpora Malpighiana; and Professor Mueller remarks that attention was directed to this point in every experiment.

The author next proceeds to give the result of his investigations of the uriniferous tubes, made with the microscope. It is extremely difficult, and in most animals impossible, to follow the uriniferous tubes to their termination by the aid of the microscope. After numerous fruitless attempts, our author luckily discovered that this could be best done in the kidney of the common squirrel. When the kidney was divided longitudinally in the course of the tubes of Bellini, the latter were observed advancing in straight lines to the cortical substance. When they entered that texture the ducts of the middle fasciculi advanced in an almost straight direction until they reached the outer surface of the gland, where they struck off in a serpentine course; while those of the exterior fasciculi, as soon as they plunged into the cortical substance, diverged in a lateral direction from each other, and formed an intricate convoluted interlacement. It is, besides, worthy of remark, that the cortical tubes seemed to be somewhat larger than those of the medullary portion of the gland at the point which the latter enter the cortical substance. The diameter of the serpentine tubes of the latter substance, however, preserve the same diameter throughout; and under the microscope they were so distinct, that the whole of this portion of the organ seemed to be composed of the gyrations and convolutions of these excretory tubes, which, in their arrangement, resembled very closely the convoluted disposition of the seminiferous tubes of the same animal, which, however, are so much larger, that they can be distinguished by the naked eye. The diameter of these tubes at their free terminal extremities were found to be 0.00149 of a Paris inch; that of the finest blood-vessels filled with injection being 0.00037 to 0.00058 of an inch. The size of these tubes, therefore, at their free mutic extremities, was nearly three times larger than the smallest capillary vessels; and their diameter, compared to that of the corpora Malpighiana, was in the proportion of 1 to 3.

By slicing off a portion of the surface of the kidney, and macerating it for some time in water frequently changed, the connecting cellular tissue was rendered so loose that the convolutions of the small serpentine tubes could be easily separated, showing the manner in which they divide, and their free cæcal extremities. Many of them proceeded undivided to their blind terminations, which were but little or not at all larger than the diameter of the tubes themselves. Others divided near their extremities into two branches of equal length, which also ended abruptly in blind extremities; and some divided into two branches, one of which subdivided, while the other continued entire to the end. But, notwithstanding the gyrations were all disposed without any regular order, those upon the surface were found constantly to terminate in prominent blind extremities, without becoming at all attenuated towards their end.

By the same process the corpora Malpighiana could be isolated, demonstrating that no connexion exists between them and the uriniferous tubes. These bodies, on the contrary, were constantly found reposing in the intestines of the cæcal extremities of the tubes and their gyrations. In very thin slices of the substance, examined under the microscope, it appeared as though those bodies were united by a very delicate filamentous tissue, as fine as a spider's web, which also surrounded the uriniferous tubes. The bodies of Malpighi were seen disseminated through this tissue, presenting the appearance of small vesicles; but stouter filaments were also observed connected with these bodies, which they seemed to penetrate. The kidneys of a new born child presented the same arrangement, as to the medullary and cortical tubes, as those of the squirrel; but the commencement of the medullary tubes in the papillæ was often observed to be surrounded by a yellowish coloured substance, which, the author suggests, may have been owing to the presence of uric acid.

Professor Mueller also conducted a part of his investigations by the aid of minute injections of the blood-vessels of the kidney, and was aided in his deductions by an inspection of the very perfect injected preparations of Lieberkuhn, already referred to. The following corollaries contain his inferences:

"1. The sanguiferous vessels of the medullary substance, smaller than the tubes of Bellini, run in a straight direction.

"2. In the cortical substance the capillary blood-vessels form every where a delicate retiform plexus, disposed in the interstices of the uriniferous tubes. These vessels are considerably smaller than the serpentine uriniferous tubes.

"3. This retiform plexus is filled and closed by injections thrown into the arteries.

"4. The corpora Malpighiana, disseminated through this retiform plexus, are appended to the larger arterial ramuli composing it, and are filled by injections thrown into the vessels which form the plexus.

"5. It was rendered apparent, by repeated microscopical observations, that these glomeruli, which receive the matter of injections from the arteries, are contained with vesicles."

In the recent kidney, the author remarks that these sanguineous glomeruli can be readily turned out of the vesicles containing them with the point of a sharp needle, so as to repose at liberty within the

cyst, only attached to that part of it in which its arterial pedicle seems to terminate; and in this manner the inner smooth surface of the vesicle can be exposed to view. In reference to these bodies the question presented itself, whether they were a part of the sanguiferous vessels themselves—whether of a vascular nature, or whether they should be considered merely as the result of a portion of the matter of the injection escaping from the artery into the vesicle, and rolling itself into a vermicular form. At first the author considered the vesicles as receptacles of the arterial blood, but subsequent microscopical observations convinced him that the matter contained in the vesicles consisted of a congeries of very delicate arteries. This was clearly seen in the recent kidney, in which it was observed that, besides blood, the vesicles contained another substance which could be protruded, only retaining its adherence to the investing cyst by a single point. By prosecuting this difficult investigation still farther, it was ascertained that the small arterial ramusculi which approach the glomeruli divide into delicate tufts, or cirri, whence tortuous ramusculi proceed, which are arranged into closely clustered loops. The glomeruli were found to be only attached to the cyst at a single point, and when they were turned out from it, a small hemispherical cavity could be perceived, through the translucent walls of which the blood occupying the retiform vascular plexus was visible.

According to repeated micrometrical measurements, the finest sanguinary capillaries of the human kidney were found to be from 0.00037—3.00058 of a Paris inch in diameter. The medium diameter of the corpora Malpighiana was 0.00700: or from 13 to 18 times larger than the preceding. This corresponds very nearly with the results obtained by Professor Weber, who found the diameter of these bodies to vary from 0.03666 to 0.00883 of an inch.

It is not easy, our author thinks, to indicate the function performed by these small corpusculæ. That they are not concerned in the secretion of urine he infers from the fact, that they have no connexion with the uriniferous tubes, which in the fishes, amphibia, birds, and the mammalia, all terminate in free cæcal extremities. He thinks, however, that the glomeruli contained within them, lodged as they are at liberty in vesicles, and appended to the arteries, are well adapted to receive the arterial blood, and retard its progress. He mentions, as worthy of remark, in relation to this subject, a fact stated by Huschke, that, in frogs, in which besides arteries, there is also a vein conveying blood to the kidneys, all the arterial ramusculi terminate upon the corpusculæ of Malpighi.

We have given so fully the results of Professor Mueller's observations on the structure of the kidneys, that we do not deem it necessary to append the summary of them, which he has appended at the conclusion of this portion of his work, since his opinions can be readily collected from the preceding remarks.

The Testicles. Professor Mueller has not offered much that is new in relation to the structure of the testicles. We shall, therefore, confine ourselves to the detail of the following summary, which embraces an exposition of his opinions upon this subject:

"1. In insects, the testicle consists of vessels and cæcal utriculi, which present great variety in their arrangement.

"2. In the gastropode molluscæ, this gland is composed of small lobules, which are made up of racemose vesicles.

"3. In the sepia, and in frogs, the testicle is composed of tubuliform utriculi, somewhat forked or ramified, ranging in a radiated direction from the middle towards the surface, and augmenting in number as they proceed.

"4. In the osseous fishes, the seminiferous tubes, arising for the most part from the lateral portion of the excretory duct, are divided into sarmentose portions, or are occasionally united, so as to form a plexiform arrangement; they all terminate in free, mutic, closed extremities.

"5. In the larger amphibia, the seminiferous vessels, of large size and considerable length, and without branches, are folded into gyrations or convolutions.

"6. In the birds, mammalia, and man, these gyrations are increased in a ratio with the greater length of the tubes. But the latter are not branched; neither do they become smaller near their ends; but preserve the same diameter throughout, and terminate in cæcal extremities."

Having given as full a description as was compatible with our limits, of the structure of the individual glands, as determined by Professor Mueller, it will be useful in the next place, to furnish a condensed view of the general summary which he has given of the characters proper to all the secernent glands. These are as follow:

1. All the glands, however much their excretory ducts may differ, are referable to one type, and may be traced through regular gradations of evolution, from the simple follicle, up to the most complex gland.

2. There is no absolute difference between the secernent organs in the invertebrate classes, and those of the superior animals. But the simple follicles, and the tubuliform secernent organs, with cæcal extremities, are not only found in the more perfect animals, but pass in the different classes, by progressive gradations, into the condition of conglomerate glands.

3. In all the glands, the internal secreting surface of the excretory duct is very extensive, but its arrangement presents great variety: being every where such, however, as to secure the greatest extent of surface within a small compass.

4. The alleged acini, as well as the glandular granules, or glomeruli of sanguiferous vessels, which have been supposed to give origin to the secernent vessels, are altogether hypothetical. There is no direct and uninterrupted continuity between the blood-vessels and the excretory tubes, either within the acini, or elsewhere. The system of secernent vessels is independent—the extremities of its tubes ending in blind extremities, which have no continuity with the arterial capillaries. The alleged acini are, therefore, nothing more than the cæcal extremities of the excretory tubes, or clusters of their racemose vesicles, which, as has been demonstrated above, may be completely filled with quicksilver, or inflated with air, in some of the glands.

5. In many glands in which these acini are said to exist, even this vesicular arrangement does not occur; the whole arrangement, as is the case in the kidney, consisting of delicate elongated tubes, presenting the same diameter throughout, and ending in cæcal extremities.

6. The ultimate divisions of the capillary arteries do not open into, or communicate with, the secernent tubes. They form, on the contrary, a delicate retiform plexus in the interstices of the elementary

parts of the gland, and there become continuous with the radicles of the veins. This plexus is always ramified extensively in the interstices of the closed tubes, and about their rounded extremities, and thus spreads itself upon all the efflorescences formed by them in their progressive evolution, in the same manner that the preliminary capillaries are distributed upon the closed ends of the bronchial tubes. The vessels composing it, however, are always much smaller than the radicles of the secernent canals.

7. Cruickshank, Walther, and others, sometimes found that quicksilver injections thrown into the excretory tubes of some glands, passed into the lymphatic vessels; hence they inferred, that there was a continuity between these two systems of vessels. This argument, our author thinks, is without weight.

8. The elementary parts of the glands, viz: the cells, vesicles, utriculi, follicles, tubes, &c. in all cases, consist of but a single tunic. The excretory duct, however, is often composed of several, the most internal of which presents the characters of a mucous membrane, with which, indeed, it is continuous. The others are either cellular or fibrous.

9. The nerves which are distributed to the glands are generally said to be very small, and not to penetrate profoundly into the organ. Professor Mueller, however, traced filaments of a large size, and in great number in the kidney of the horse, proceeding from the emulgent plexus along the divisions and subdivisions of the arteries and veins, and penetrating deeply into the gland. They formed plexi upon the larger vessels, but could not be discovered departing from them.

In this exposition, we have greatly abridged the author's summary, and have omitted altogether many of the points laid down by him. We have merely attempted, indeed, to give some of the most important of the conclusions to which he has arrived. Many others can be collected from the preceding details.

We should be pleased to give Professor Mueller's classification of the glands, and also to notice his views in relation to the developement of these organs, and the process by which secretion is accomplished. His observations upon the two last subjects possess considerable interest; but we have already occupied so much space with other details, that we find ourselves under the necessity of bringing our remarks to a close. This we do with regret, as it does not often fall to the lot of the reviewer, to have the gratification of noticing a work like the present—rich in new and important facts, the fruits of patient and laborious investigations, and calculated to shed additional light upon some of the most obscure and interesting phenomena of the animal economy. We have already said, that the publication of Professor Mueller's work may be regarded as constituting an era in anatomical science. In the richness of its details, and the beauty of the illustrations, we have no hesitation in expressing our opinion, that it far surpasses any recent contribution on the anatomy of texture; and it is much to be regretted, that its costliness will prevent it from being so generally read as it deserves to be, on account of its great value.

E. G.

BIBLIOGRAPHICAL NOTICES.

Art. XII. *Pathological Researches on Phthisis, by* P. Ch. A. Louis. *Translated from the French, with introduction, notes, additions, and an essay on treatment, by* Charles Cowen, M. D. *Revised and altered by* Henry I. Bowditch, M. D., Fellow of the Mass. Med. Society, and Member of the Society for Medical Observation at Paris. 8vo. pp. 622. Boston, 1836.

The work of which we announce the translation, is, in some respects, one of the most remarkable productions of modern medicine. Its history is briefly as follows: The author, M. Louis, was engaged in the practice of medicine, in Russia, from the age of 17 to that of 33, with considerable success. About the end of this time, circumstances called him to Paris. He there visited the medical ward of M. Broussais, in the Val de Grace hospital, and made himself acquainted with the peculiar doctrines of that practitioner. Combining these with his previous observations, he became strongly impressed with the existing uncertainty of pathological science. He resolved therefore to abandon practice, and devote himself, for a time, exclusively to the study of disease. For this purpose he entered the Charity hospital as a clinical clerk to M. Chomel. He there passed regularly from three to five hours a day in the examination of cases, and gave at least two hours to each autopsy. He soon became satisfied, that a history of phthisis, embracing the symptoms referrible to the other organs of the body, as well as those having relation to the lungs, in fact a description of its phenomena, primary and secondary, in every stage, illustrated by the results of careful and ample dissections, was still a desideratum; and this defect he undertook to supply. His labours were particularly directed to this end from the year 1821, and the work before us appeared in 1825. During the interval, M. Louis watched the progress of all the cases which entered the ward of M. Chomel, containing 48 beds, and, in all those which proved fatal, subjected the various organs to the test of a rigorous scrutiny. His plan in fact made it necessary that, for the purpose of comparison, the same class of symptoms should be noticed, and the same parts examined in other chronic diseases as in phthisis. His mode of proceeding was to prepare for each case a table, exhibiting, as distinct heads, the different functions. Then, in one range or section, was shewn the state of these functions previous to the admission of the patient, commencing from the earliest symptoms of disturbed health; in another, their condition at the moment of his entrance into the hospital; and in successive ranges the new facts presented each day, until dismission or death. If a particular function presented no derangement, its exemption was duly noted, so that, in case any lesion was found after death in the corresponding organ, the absence of any discoverable symptom might be absolutely evident. The tables for entering autopsic results were prepared with the same care; each important organ forming the title of a compartment or column, in which were carefully recorded whatever peculiarities of structure it might present. These tables are not given in the work; but of the 123 fatal cases of phthisis on which it is based, 50 are introduced at length to illustrate particular observations, and form as the author says, the *pièces justificatives* which verify the accuracy of his statements.

By comparing together the functional derangements exhibited during life, with the state of the organs as shewn after death, facilities were of course furnished for obtaining correct diagnoses in future cases. If an organ was found to vary more or less from its healthy state, and if this variation, by its nature and degree, explained a previous derangement of function, and no other explanation could be suggested, the conclusion was almost inevitable, that the organic change was, in that case, the cause of the derangement, and the recurrence of the symptom in a new case would render it extremely probable that a similar alteration had occurred. It will be seen by the reader of the work, that M. Louis was able in repeated instances to divine the causes of symptoms, which, but for his previous investigations and comparisons, would have conveyed no distinct information.

Among the precautions adopted in examining patients, in order to diminish, as far as possible, the risk of error, was that of avoiding, at all times, what are termed *leading* questions, or which, in other words, dictate their own answers. When pain was suspected to exist on one side, the other was made the direct object of enquiry, and the same question was often put in various forms, each time, so as to avoid any allusion to answers previously given. If the youth or mental weakness of the patient rendered any part of the testimony undeserving of confidence, this circumstance was entered upon the record. These precautions are of common use in taking legal testimony; but in the investigation of disease, they have been, as our author intimates, in general too much neglected.

The work is divided into two parts. The first embraces a general description of the lesions of the different parts, as discovered after death. The morbid appearances observed in the lungs, the pleuras, the larynx, the heart, stomach, liver, &c. are here successively exposed; and in order to obtain data for determining whether any, and what proportion of the lesions exterior to the lungs were yet the effects of the leading disease, those exhibited by the same organs as the sequel of other fatal chronic affections are in every instance appended. When the result of this comparison points to any general conclusion, this is given, and the causes which may have produced the several morbid changes are likewise considered.

The second part embraces the history of symptoms. It commences with those of phthisis viewed independently of its complications, especially those which constitute the diagnosis in the earliest stage; next follow the symptoms which accompany ulcerations of the epiglottis, larynx and trachea; then those which belong to the lesions of the mucous membrane of the stomach, &c. The author then passes to the consideration of the anomalies presented by phthisis, whether 'acute' or 'latent;' then to the description of the symptoms manifested when the pulmonary parenchyma is perforated, by the bursting of a suppurating tubercle into the cavity of the pleura; several of the causes of sudden death are detailed; the evidence of facts is appealed to, for the determination of the importance of some of those causes, to which the developement of tubercles has been attributed; and finally, a brief history is given of the treatment of the cases which form the subjects of analysis.

Of the numerous conclusions, more or less general, which M. Louis has obtained from the wide field of observation, we can do no more than mention a few of the most striking. The existence of tubercles in the lungs is the cause, and constitutes the special character of phthisis (2). This fundamental proposition, in which our author coincides with M. Laennec, amounts, strictly speaking, to no more than a definition of what he intends by the term phthisis; and therefore is not a just subject for criticism. We apprehend, however, that the experience of many pathologists on this point would be expressed in the language adopted by Broussais, who has seen cases of phthisis where no trace of tubercles could be detected. The stricter view of the disease adopted by Louis ought to be constantly kept in mind in reading his work.

In every instance in which M. Louis met with tubereulous formations in any part of the body, similar formations were to be detected in the lungs; and as the converse of the proposition is by no means true, the inference is obvious, that these formations, when found in other parts, are consecutive of those in the pulmonary structure (212.) It is to be remembered that all the subjects of observation were above 15 years of age. Evidences of alteration of the stomach in colour, consistence, thickness of the coats, &c. are found in four-fifths of the examinations of phthisical patients (100.) These appearances are likewise present after death from other diseases, but much less frequently (101.) Ulcerations of the small intestine are found, almost exclusively, after death from phthisis (130.) Those of the large intestines are nearly as peculiar to this disease (140. 145.) Ulcerations of the epiglottis, larynx and trachea, may also be regarded as dependent on tubercles in the lungs (60.) The perforation of the small intestine may be regarded as certain, when, in the course of an acute disease, and under unexpected circumstances, the patient is attacked with sudden and violent pain in the abdomen, increased by pressure, accompanied by a great change in appearance, and succeeded by nausea and vomiting (113 note.) It is impossible to appreciate the state of the mucous membrane of the large intestine by means of the fecal discharges, except in very rare cases (143.) It is equally evident that there is no real relation between the state of the tongue and that of the stomach; if the former is sometimes red in gastritis, it is still more frequently pale; and, on the other hand, it is sometimes dry, hard, and intensely red, when the gastric mucous membrane is healthy (352.) A fatty degeneration of the liver is one of the most frequent post-mortem appearances from phthisis. It occurred in one-third of the cases where there were pulmonary tubercles; of those in which the latter were not present, this peculiar structural alteration was found in two only (159.) Hemoptysis, when not caused by external violence, and not following upon sudden suppression of the catamenia, renders the presence of tubercles in the lungs infinitely probable (233.) The symptom of pain in the chest depends on the adhesions of the lungs to the pluras, and not on the number or size of the excavations (250.) Whenever, in a case of phthisis, a violent pain in one side of the chest comes on suddenly, accompanied with dyspnœa, anxiety, and all the symptoms of acute pleurisy, we may conclude that perforation of the lung has taken place by a softened tubercle discharging itself into the pleural cavity (131.) These symptoms, however, do not appear to have been observed by Laennec (137.) It is not proved that pneumonia, pleurisy, or bronchitis, has any influence in producing the developement of phthisis. In one-twelfth of the cases which occurred to M. Louis, pulmonary tubercles were developed, independently of all inflammation, whether of the substance of the lungs, of the pleuras, or of the bronchia (177.)

Of the thoroughness, care, and accuracy with which M. Louis's investigations are conducted, it is not our purpose at this time to speak. Our commendation could add little to the fame of one, who has been pronounced by Marshall Hall to be the first physician in France, perhaps in Europe. If the positive results to which his researches have conducted him are not numerous, they are at least established on a firm and durable basis. The rigorous method he imposed on himself was indeed better calculated to detect and dissipate error, than to elicit any new or brilliant theory. In subjecting to the test of observation some of the prevalent but vague and unfounded notions which have passed current hitherto on mere authority, he has performed a service for the science and practice of medicine which can scarcely be overrated. A false principle, received and acted on as true, produces effects far beyond the sphere of its direct operation. Every instance of its fallacy is regarded as a new exception; till the practitioner, wearied and disgusted by the failure of his anticipations, comes to believe that all is uncertainty in his art, and that theory and experience are alike useless. Once instructed as to the source of his embarrassment, he finds

a thousand difficulties removed, and returns with renewed energy to the task of observation.

The peculiar constitution of M. Louis's mind however, his extreme reluctance to admit aught on insufficient evidence, appears to us on one or two occasions to have betrayed him into unnecessary scepticism in points to which his opportunities of enquiry did not extend, or which they enabled him to investigate only partially and incidentally. It is true, that he nowhere denies with confidence where he is not fully informed; but the expression of a doubt on a subject of general and especially of practical interest should not be lightly hazarded. It has generally been supposed, for example, that pregnancy retards the progress of consumption, and this opinion, we doubt not, has something more than a mere speculative influence. M. Louis justly remarks that for the positive determination of this point, numerous facts are required, and even several years observation in a lying-in hospital (362.) Here the subject might safely have been dismissed; although it appears to us, that by simply inspecting the records of such an establishment, the point might be settled without much difficulty. But in his conjectures as to the possible causes of the error, supposing it to be one, we cannot follow him with our usual satisfaction; and when he asks whether it is probable that pregnancy, itself a cause of dyspnœa, should procrastinate the duration of phthisis in which dyspnœa is always a more or less troublesome symptom, we are tempted to say that he departs widely from his usual adherence to inductive reasoning.

The same extreme dread of premature generalization marks the language of M. Louis, when speaking of the influence of dress upon the developement of tubercles, and particularly of that article of female apparel which has been rather a favourite object of medical hostility. He allows that most of the female patients who came under his notice had been affected with dyspnœa before the symptoms of phthisis declared themselves; but he adds "this was equally the case with the men; so that if we admit a connexion between this peculiarity in dress and phthisis, it would not be correct, even if they have been worn from a very early period of life, to attribute phthisis to stays. Besides, the majority of our female patients have been educated in the country, were habituated to rustic occupations, and had only been accustomed to stays after their residence in Paris, when their growth was established; or, in other words, when stays could not have exerted any considerable influence on the dimensions of the chest. Supposing, however, this influence to have existed, its demonstration would be exceedingly difficult; for it would be necessary to compare a great number of women together—some of whom had worn stays from a very early period, the others only after the full growth of their bodies—to be enabled to decide if phthisis was more frequent in one class than in the other." (479.) This is certainly just, but it is not quite so certain that this is the only question at issue. It is evident that the *growth* of the chest cannot be materially interfered with by dress after a comparatively early period; it is equally evident that undue compression must interfere with the action of the respiratory muscles at any age, and by impeding respiration may become a predisposing cause of pulmonary disease. The actual influence of the corset in common use in producing such undue compression is a very different question; and one which has hitherto called forth more eloquence and zeal than either knowledge or discretion. An enquiry into this subject, conducted in the spirit of strict impartiality and rigorous induction, could not fail to lead to some useful results.

The section immediately following that we have just quoted is also calculated to awaken doubts, and that in regard to a point in which it is very desirable that the minds of both practitioners and the public should be fully made up. We refer to the hereditary tendency of phthisis; a principle which we believe common observation to have established so amply, as to require no confirmation from statistical records. Our author thinks differently; and after

stating that he had not collected any fact in favour of the hereditary nature of phthisis, adds that "to determine the question satisfactorily, tables of mortality would be necessary, comparing an equal number of persons born of phthisical parents with those in an opposite condition." Dr. Cowan, in a note on this section, observes, "there can be but little doubt, as a general principle, that children born from healthy parents are more robust than those in opposite circumstances; and on this account are less predisposed to disease. The evidence hitherto adduced in favour of the hereditary nature of phthisis amounts to little more than the announcement of this fact; and while we cannot help admitting, in the children of consumptive parents, a *predisposition*, there is no reason to suppose that in the majority of instances, prophylactic treatment would not be attended with success." We believe, on the contrary, that the hereditary influence of consumption is specific; if it is not, we see no mode of accounting, on the principles of M. Louis, for its being hereditary at all. The prophylactic treatment alluded to must have one of two objects; to confirm the general strength, or to avert the ordinary forms of pulmonary affection. But our author assures us, that tubercles are nearly equally frequent in persons of strong as of weak constitution (479;) and we have already seen, that he does not consider catarrh, bronchitis, or pneumonia, to be among the exciting causes of tuberculous developement. If phthisis in the parent, then, render the child more liable to the same affection, the influence must be specific. The occurrence of tubercles in the fœtus, an appearance admitted by Dr. Cowan, tends still further to confirm this view of the subject.

We observe by the prefatory remarks of Dr. Bowditch, that he has corrected whatever errors in translation had been committed by Dr. Cowan, and that he has not in general considered it necessary to mention where these alterations occur. It would, we think, have been fairer to Dr. C., and more just to himself, had this been done, whenever by the change of expression a different sense was given to the sentence. Dr. Cowan's long residence in Paris, his assiduous attendance on the clinics and examinations of M. Louis for twelve months, and the personal intercourse he enjoyed, afforded him the greatest advantage for the work he has undertaken, both as translator and commentator. His mode of expression, however, is not always the most happy, even where he appears fully to have understood his author; and some of the inaccuracies which Dr. Bowditch has made the subjects of particular notice, certainly indicate a want of that strict attention and care, which, in a work like the present, the reader has a right to expect. Dr. B.'s own style, to judge of the translation he has given us of the report to the academy, is pure and agreeable, and a careful comparison of this with the original enables us to bear witness to his scrupulous fidelity. In one instance, p. 532, he makes the reporter say, that M. Louis himself believed that he had examined the lungs with more accuracy than Bayle. By referring to the original he will see that M. Chomel announces the conclusion as his own. This is the only mistranslation we have been able to detect. The few typographical errors which occur in the course of the work, will readily suggest their own correction; and we take this opportunity to add, that the style in which the whole is executed, reflects credit on the liberality of the society, at whose expense we understand the edition is printed.

The short notes of Dr. Cowan, to which we have already alluded, form useful illustrations of the main work; and the longer, which the American editor has very judiciously arranged by themselves, are essays of some merit and interest, on the origin, diagnosis, remote causes, and treatment of consumption.

E. G. D.

Art. XIII. *Leçons de Clinique Medicali, faites à l'Hotel Dieu de Paris.* Par le Professeur A. F. Chomel. Recueilles et publiées par A. P. Requin, D. M. P., &c. Tome second, (Rhumatisme et Goutte.)

Lectures on Clinical Medicine, delivered at the Hotel Dieu of Paris. By Professor A. F. Chomel. Edited by A. P. Requin, D. M. P., &c. &c. Paris: Germer Bailliére, 1837.

We confess that we have been rather disappointed in this work. The high reputation of the author, his known habits of laborious and patient research, and his excellent judgment in observing and appreciating what exists in nature and what must consequently be always true, had led us to expect a more finished production. But the pressure of occupations which necessarily results from an extensive practice, and a clinical chair (the most laborious of all) at the school of Paris, absorbs the time of Dr. Chomel. He has therefore contented himself with promulgating his views on the subject of rheumatism in a series of clinical lectures, and has left the care of their revision and publication to an adjunct professor and former pupil.

The task of revising and of publishing is rarely a very attractive one—the editor is neither expected nor required to devote his whole strength to the setting forth and pruning the ideas of another. Nor if he did give himself entirely to the task, and if he possessed all the necessary qualifications, could he ever communicate to his work the clear, full developement, and the condensed style necessary for a classical treatise? It is probably for these reasons that we remark looseness and want of condensation in the work—an imperfect elucidation of many essential points, and an omission of much detail which is useful and instructive in a monograph, though oftentimes unwelcome in a course of public lectures. The professional readers of M. Chomel's published lectures will not, like the students at the Hotel Dieu, complain that accurately drawn distinctions are often tiresome and fastidious.

The desire for a positive and definite knowlege of those diseases which were thought to be well understood, has become so keen since the publication of the inimitable works of Dr. Louis, that we rise unsatisfied from the perusal of a treatise which, though in itself good and undoubtedly correct in the essential points, is chiefly dependent upon the moral proof resulting from the confidence we place in the author. The knowledge which we now require must be based upon that clear demonstrative evidence of well combined facts and deductions which speaks for itself, and is beyond all cavil. No work devoted to a single subject can be now well received, unless it offers the trace of laborious and accurate investigation, and can add something positive to the vast mass of doubtful and ill-observed facts we now possess.

Amongst those diseases whose pathology and treatment are thought to be well known, although in reality there are still numerous points yet doubtful as to their history, is rheumatism. We would rigidly exact, in a work upon this subject, a thorough analysis of all important symptoms, as these are not numerous in a disease which disturbs so little the play of the principal viscera. The task of the author is comparatively an easy one;—we therefore expect such a research into the nature and distinctive characters of the prominent features of rheumatism as may establish the distinctive characters of its different varieties, and separate it from the diseases with which it may be confounded. Now Dr. Chomel has indicated those distinctive characters, but he has only indicated them, and his work, although very perspicuous, is still but a little better than those treatises already published on the same subject. Nevertheless it is always interesting to be acquainted with the peculiar notions of a professor as cautious and as discriminating as Dr. Chomel, although we may know that he

could have given us a much better work if his time had not been so fully engrossed by the daily avocations of a teacher and a practitioner.

In accordance with common usage, the author divides rheumatism into three natural classes—rheumatism of the muscles, of the articulations, and, lastly, of the viscera. These different classes are so much connected, that it is not always easy to study them separately, as the developement of one variety is very apt to be followed by that of the other kinds. Much of the interest attached to the study of rheumatism arises from this very complexity and intermixture of the symptoms of one kind with those of the other. The knowledge of one variety, then, almost necessarily includes that of the others; and the fear of some sudden and singular transference of the seat of the affection keeps our attention alive to its varying features. If rheumatism were an unvarying disease, confined to the muscles or articulations in which it first was seated, it would prove painful to the patient, but not dangerous; but as it is so capricious, and at times so dangerous, our solicitude for a patient affected with it arises less from his pain than from the certainty that the disease will again appear to torment him, and perhaps attack an internal viscus essential to life.

Dr. Chomel has pointed out the rheumatic character of several of the visceral affections lately included under the sweeping term inflammation—he has even attempted to draw a line of distinction between the neuralgic and the rheumatic diseases of the viscera.

Muscular rheumatism never leaves an anatomical lesion cognisable by our senses, our author states; he very judiciously refers the pretended cases of suppuration of the cellular tissue adjacent to the rheumatic muscles, to a real phlegmonous erysipelas, mistaken for rheumatism. We have seen more than one case of the kind confounded with rheumatism, and treated accordingly, until the sloughing of the skin, or the tardy pointing of the abscess, revealed the error. But in unequivocal muscular rheumatism, there is no trace of the lesion left after death, a circumstance, amongst others, indicating its near relation to the neuralgic affections. The constant and characteristic symptom of muscular rheumatism, is pain much increased by motion. The last peculiarity constitutes a differential character between it and simple neuralgia.

Dr. Chomel has given some curious but instructive cases of rheumatism of the muscles of the hand, which is a troublesome variety, of the neck constituting the acute torticollis, of the tongue, the muscles of the eyes and the pharynx. Now, in each of these cases, he bases his diagnosis upon the coexistence of a rheumatic affection of some other muscles of the body combined with the painful local affection. As this tendency to rheumatic complaints is scarcely ever absent in these patients, there is comparatively little danger of confounding any of these forms of rheumatism with the more local inflammations of the muscles.

His diagnosis of pleurodynia offers nothing new, indeed there is but one means of distinguishing a slight circumscribed pleurisy without effusion of liquid from a pleurodynia, it is the comparative fixedness of the pleurisy and the quick rapid transitions from pain to ease, which accompany the pleurodynia. But our readers should be aware that there must always be a difficulty in the diagnosis, for if the simple rheumatic pain becomes rather more permanent than usual, it always gives rise to a real inflammation of the pleura, which is then inflamed from the mere transmission of irritation. Practically the distinction between slight pleurisy and severe pleurodynia is unimportant, as in either case a cupping, some leeching, a sinapism, or a cataplasm, will relieve the pain, without interfering with the general treatment of the disease.

Gout is regarded by Dr. Chomel as a mere variety of articular rheumatism, and is dismissed by him with a short notice. He neither offers any new methods of treatment nor peculiar pathological views.

The frequent coincidence of inflammation of the internal serous membranes

with acute articular rheumatism, is one of the most interesting points connected with the pathology of this affection. Like all those facts which can only be completely elucidated by pathological anatomy, the knowledge of this coincidence, although not of recent origin, is now much more generally appreciated. Still there remains a considerable degree of obscurity upon the subject, and the difficulty of clearing this up, has been much increased by some unfortunate peculiarities in the individuals whose attention has been directed most strongly to it. Dr. Bouillaud, who has devoted extreme attention to this matter, is too exclusive in his notions, and attaches too exaggerated an importance to his own peculiar views, for his scientific assertions to be received with entire willingness. They need confirmation, and oftentimes rectification before they can become part of the science, and be universally received as truth. M. Chomel, on the other hand, partly from personal dislike for the mode in which M. Bouillaud asserts his opinions, and partly from a natural scepticism, is inclined to reject the evidence furnished by the former physician, and to doubt the correctness of his examinations or conclusions.

The essential difference in the opinions of the two above mentioned observers is this. M. Bouillaud believes from an analysis of his facts, that about one half the cases (sometimes, he says, a larger proportion) of articular inflammatory rheumatism are complicated with inflammation of the external or internal membrane of the heart, or of both these serous tissues. M. Chomel admits that this coincidence is not rare, but without stating their proportions he concludes from his observations that the number of cardiac complications is vastly less than M. Bouillaud believed.

It is not easy to decide this point, on account of the obscurity of some of the signs of endocarditis and even of pericarditis. Still these signs are in many cases distinct, and from our own observation we should incline to the belief that the calculation of M. Bouillaud approaches most nearly to the truth. If we confine the cases to severe articular rheumatism, attended with considerable pain, swelling and heat, of several articulations, we would say that at best one half the cases offer signs of disturbance of the action of the heart to a vastly greater degree than are observed in other febrile diseases. So common indeed is this coincidence, that a physician is now scarcely justifiable who would neglect an attentive and repeated exploration of the heart during the course of an articular rheumatism, and even after its termination. Patients who die during the continuance of articular rheumatism, generally perish of this complication, and a considerable number who recover from the immediate effects of the disease are afterwards attacked with chronic cardiac diseases.

Pleurisy, as well as pleurodynia, frequently occurs during the progress of rheumatism and is often mistaken for a mere muscular affection; these mistakes are not immediately of great practical importance, as the treatment of these two complications differs but slightly. The pleurisy is, however, sometimes considerable, and demands more care, when this is the case, there is little difficulty in the diagnosis, if attention be paid to the ordinary physical means of exploration.

The *treatment* of inflammatory rheumatism is largely commented upon by M. Chomel who examines the utility of several methods without adding to them much of an original character. He expresses himself with a very proper degree of reserve and of philosophic doubt. M. Bouillaud fancied that he had discovered a specific treatment for inflammatory rheumatism, capable of arresting it *abruptly*, in the employment of large and repeated blood-letting. It was an illusion from which American practitioners would have been exempt,—useful as blood-letting sometimes is, when carried to a great extent, it is not generally capable of cutting short the disease, as the mere examination of the tables of La Charité will show, contrary to the deductions drawn from them by Dr. Bouillaud. Indeed these very large and very frequent abstractions of blood, carried to the utmost limits of the strength of the patient, are attended with the serious dis-

advantage of enfeebling his strength, and of exposing him to a prolonged convalescence and to the attacks of consecutive diseases.

Sudorifics are, it would seem, contraindicated in the beginning of the disease, because the rheumatic patient almost always sweats without the aid of Dover's powder, or tartarized antimony. But if he should not happen to sweat, the pain and suffering are generally greater. Are we not then right in using mild diaphoretics, even at the beginning of the disease, although at that period we do sometimes err in using those of a too stimulating kind.

Purgatives are also regarded with suspicion by the author, even the colchicum is called a mere palliative. So it is; but still as a palliative it has a certain action, it diminishes the severity of the pain, and very probably exerts an influence upon the ultimate duration of the disease. Arsenic and quinine are both dismissed with the same decision. But when we know that the employment of the cinchona was at that time very general, and that the confidence of physicians in its virtues were strong, is there not some reason for thinking that in some varieties even of inflammatory rheumatism it is useful. These varieties are to be looked for amongst the patients who come from miasmatic districts, and generally form with difficulty any vigorous antiphlogistic measures. During the last summer we witnessed such a case, and often regretted that quinine was not employed in the latter stages of the rheumatism, which at last, terminated in general dropsy.

Dr. Chomel believes that tartarized antimony in high doses and digitalis are both without effect in arresting an inflammatory rheumatism; equally ineffectual are the mercurial inunctions, whose use has been lately revived by Dr. Trousseau. The author, in rather a cavalier manner, notices amongst the "interminable catalogue of odd and bizarre remedies," the mode of treatment proposed by Dr. Mitchell of this city, that is repeated cupping to the spine. We *know* that undoubted advantage often results from this practice, though we are not yet prepared to give an exact estimate of its value.

The treatment of M. Chomel consists in one or two moderate bleedings; rarely local blood-letting, as leeching, will frequently exasperate the pain in the affected joint; cataplasms, unless from some idiosynerasy they should be disagreeable, diaphoretics towards the decline of the disease, and a strict observance of the hygienic means. These consist in the use of a firm, but not a hard bed, a moderately cool room, cool drinks, diet, and entire rest. Of these different measures, we would especially call the attention of the physician to the use of cataplasms, a most useful adjuvant to the ordinary treatment, and often strangely neglected in this country. One of the best poultices is made of hops, mixed with a little flour of maize, and sometimes sprinkled with laudanum. The relief they give the patient is quite as great as that obtained from many remedies of a more violent but less soothing character. It is a great merit of the French physicians to attend so strictly to relieving the suffering of their patients, by those simple yet efficacious remedies.

Under the head, chronic articular rheumatism, the author includes many of those chronic inflammations of the joints which, at first of a transient and variable character, afterwards become permanent, and in the end give rise to disorganization of the structure of the articulations. There is nothing new relative to its pathological anatomy, and its treatment is equally devoid of much that is interesting. Warmth, baths, acupuncture, and other remedies of that kind, are by turns recommended, and frequently alleviate the sufferings of the patients, although they usually fail in removing the strong liability to a return of the affection. M. Chomel, with reason, attaches the greatest importance to the use of sulphur baths, either the natural warm sulphurous springs or the artificial bath made by dissolving the sulphuret of potassa in water. Amongst those agents which possess some power of restoring the functions of the skin, we know of nothing comparable to the sulphur baths; whenever we can em-

ploy them, they are our favourite remedy in chronic rheumatism. The vapour baths, M. Chomel speaks of with respect, but he doubts the powers of the large class of vegetable sudorifics or medicines which are supposed to possess a specific power in modifying the progress of chronic rheumatism. These are the sarsaparilla, guaiacum, &c. We think he is again in error; at least, the compound, or even the simple decoction of sarsaparilla, have proved most useful in our hands. We mean in cases in which the disease continued stationary until those remedies were used, and was afterwards modified most certainly.

As a prophylactic treatment, our author advises the wealthy patients to resort occasionally to the warm sulphur springs; and the poorer classes to avoid cold humidity and indolence. Advice which is evidently appropriate, but difficult to enforce.

Internal or visceral rheumatism is of frequent occurrence during an attack of inflammatory rheumatism, and may also occur without such coincidence in rheumatic patients. It is impossible to indicate with precision the symptoms of these visceral rheumatisms, they necessarily vary with the organ affected, yet an experienced observer need rarely err in their diagnosis. He would decide from the existence, or the frequent recurrence of articular rheumatism, and would resort to the long established practical rule of recalling the inflammation, if possible, by sinapisms and other irritants towards the joints which had been previously inflamed. Obscure then, as this subject might seem, there can be no permanent difficulty in the diagnosis.

If we inquire what additions have been made to our knowledge of rheumatism and rheumatic diseases by the work of M. Chomel, we shall find them very limited. He has added some precision to our diagnosis, but as the disease is generally easily recognised, there was little improvement necessary. The sifting ordeal to which he has subjected the various methods of treatment regarded as specific, may prove of some utility in stimulating the zeal of his brother physicians to a careful observation of the effects of the remedies which they may prefer. Their united efforts may lead to some important results; but alas! how difficult is it to acquire that patient and conscientious spirit of inquiry, which is strong enough to repress professional vanity, and an exaggerated estimate of their peculiar skill. This difficulty immensely obstructs the progress of therapeutic science, the most obscure, and if pursued in the right spirit, the most laborious part of the science of medicine. W. W. G.

Art. XIV. *Die Behandlung der Lustseuche ohne Quecksilber, oder die Nicht Merkuriellen Mittel und Methoden zur Heilung der Lustseuche. Nebst einem kurzen Bericht über die anwendung der Antiphlogistischen Methode gegen diese Krankheit, im Allgemeinen Krankenhause zu Hamburg.* Von Dr. Friedrich Wilhelm Oppenheim, Praktischem Arzte und Wundarzte in Hamburg. 12mo. pp. 290. Hamburg, 1827.

On the Treatment of the Venereal Disease without Mercury, or an Account of the Non-mercurial Remedies recommended for its Cure; together with a Short Notice of the Antiphlogistic Treatment of the Disease pursued in the General Hospital of Hamburg. By F. W. Oppenheim, M. D.

From the first appearance of the venereal disease in Europe, towards the close of the fifteenth century, up to the present time, the utmost zeal has been manifested in attempts to discover for it some unfailing specific remedy. The antivenereal properties of almost every article upon the lists of the materia medica have, in consequence, been tested; and although, for a long period, mercury was esteemed, and still is by many, the most, perhaps the only safe and effectual agent for eradicating from the system the supposed venereal virus, yet, if we place

any confidence in the testimony afforded us by many of the older writers, as well as by several contemporary physicians, it is certain that there are numerous other remedies, far more manageable and less violent in their operation, than mercury, which are equally if not better adapted for the cure of the venereal disease under nearly all circumstances.

To present a concise view of the several non-mercurial agents, and plans of treatment that have at different periods been recommended for the treatment of this disgusting malady, and to adduce the evidence recorded in proof of their respective efficacy, is the main object of the work before us.

The subject is treated of under the following heads:—

1st. Of individual remedies from the vegetable kingdom, which operate upon the skin, kidneys, or bowels.

2nd. Of combinations of several of the above remedies.

3d. Of metallic, saline, and inflammable remedies.

4th. Of acids.

5th. Of alkalies.

6th. Of remedies derived from the animal kingdom.

7th. Of baths and fumigations.

8th. Of restricted diet and abstinence.

9th. Of the antiphlogistic plan of treatment.

Under each of these heads a good deal of interesting matter is comprised, while taken together they present a condensed but very able history of the therapeutics of syphilis. The reader will discover from this history, what is not perhaps generally known, that, namely, the treatment to which the disease was subjected upon its first appearance in Europe, is the very same with that which has been adopted and strongly recommended by some of the most distinguished medical authorities of the present day, as being the one best adapted to its cure.

For this treatment, which is strictly antiphlogistic, Dr. Oppenheim is a decided advocate, and was among the first who introduced it into the German hospitals. He believes that it can be shown from historical data, that since the period when mercury became to be universally esteemed the proper remedy for the venereal disease, the latter has increased in the obstinancy and violence of its symptoms; and he maintains, that when the treatment of it by antiphlogistic remedies alone shall be generally adopted, the beneficial effects produced upon the present, as well as the future generation, will be scarcely less than those resulting from the discovery of vaccination.

In the present work the pathology of the venereal disease is but slightly and indirectly treated of; enough, however, is said in relation to the subject, to lead us to infer that the author is a non-believer in its specific character. He remarks, that even from the immense number of remedies which have been asserted to effect its cure, we may draw a very strong argument against the presumed existence of a venereal virus; for it cannot be very readily understood how a disease, resulting from a poison *sui generis*, can be removed by such a multitude of dissimilar means.

To show more fully the views of Dr. O. in relation to the proper treatment of venereal affections, and as a specimen of his manner of treating the subjects comprised in the work before us, we translate the whole of the ninth chapter; being that devoted to the consideration "of the antiphlogistic treatment of syphilis."

"The most ancient method of treating the venereal disease was by antiphlogistics. It has been shown, in the introduction to this work, that the physicians who saw the disease upon its first appearance in Europe, towards the close of the fifteenth century, knew of no other remedies for it than blood-letting, purgatives, &c. Sebastian Brant, who in 1496, wrote an elegiac poem upon syphilis, says, '*Sola jurat—phlebotomia frequens.*' Conrad Gilinus says, when speaking of the cure of the disease, '*Cura hujus ægritudinis tribus completur instrumentis. Primo, regimine et nutritiva h. e. dicta; secundo, phlebotomia et purgatione; tertio, balnea-*

tione in decocto herbarum emollientium et inunctione portium dolentium cum linc-mento attenuante et incidente.' That is, 'The cure of this disease is to be effected by three classes of remedies—1st. Regimen and diet. 2nd. Bleeding and purgatives. 3d. Bathing in a decoction of emollient herbs and anointing the painful parts with an attenuant and resolving liniment.' Dominicus Leo rejected mercury as a remedy in the disease, and recommends bleeding, purgatives, &c. Besides the above, a number of writers have been quoted in the preceding parts of this work, who assert that they cured their syphilitic patients entirely by means of rest, diet, and purgatives. From the accounts given us by numerous travellers, we learn that this is the only plan of treating the disease pursued in different countries; such is the case according to the testimony of Brown, Hornemann, Lery, Leblond, and others, in Fez, Numidia, Lybia, and St. Domingo.

"Evidence is not wanting to prove that the disease may even heal of itself, without the assistance of medicine. In Canada, we are told, that children often recover from it, without being subjected to treatment of any kind; and even in older persons, single cases have been observed, in which the venereal symptoms have been removed by a general spontaneous reaction towards the superfices of the body. The same has likewise been known to occur in some parts of Numidia and Lybia.

"In the districts of Payta and Piura, in the northern parts of Peru, the venereal disease is cured with great ease and promptness. In the city of Peru there is a single hospital to which syphilitic patients are conveyed from considerable distances, because they are there cured in a very short time without the aid of medicine. Other cases of the spontaneous cure of the disease, are to be found in the works of the older writers; as Tomitanus, Fracastorius, De Blegny, De Hery, Fernelius, Ramazzini, Van Swieten, &c., and among the more recent are those of Lagneau and especially Vaca-Berlinghieri."

"From the fact of the spontaneous cure of the venereal disease, are to be explained the observations recently made by the military surgeons connected with the expedition to Russia, in 1812–13. Many of the soldiers, it is stated, who when they set out with the army were labouring under various syphilitic affections, found themselves, subsequent to their retreat, nearly perishing with hunger, but completely cured of the disease, although they had taken no remedies whatever."

"Notwithstanding the foregoing facts and observations, it has been almost universally believed that syphilis can be effectually cured only by specifics, at the head of which was ranked, and still is ranked by many, mercury. That numerous other remedies and plans of treatment have, at different periods, been proposed, will be seen from the previous chapters of this work. Diet, depletion, and abstinence have, indeed, always been considered as necessary adjuvants to ensure even the efficacy of the presumed specific.

"It is to William Fergusson, a British surgeon, that we are mainly indebted for again directing attention to the plan of treating the venereal disease, without the aid of any specific remedy. During his residence in Portugal with the British troops, he observed there that the disease very readily healed without any remedy, and that the Portuguese soldiers much more quickly recovered, and were especially less liable to suffer any severe effects from it, than those of the English army, who were treated by mercury. He ascribed this difference, however, to the syphilitic virus having become exhausted in the Portuguese, and did not consider it adviseable to trust the cure of the disease, when it attacked the English soldiers, to the same treatment as was observed to be so successful in the cases occurring among the natives; nor did he believe that a similar treatment could be advantageously pursued in England, or in similar cold climates. His communication served, nevertheless, to direct attention to the subject.

"Rose had equal opportunities with the former gentleman to observe the disease as it occurred in Spain and Portugal; and confirmed the accuracy of his observations. He very soon afterwards commenced to treat the soldiers in England, affected with the venereal, in the manner pursued by the Portuguese. He placed them upon a spare diet of vegetables, confined them to bed, and ordered them opening medicines. The results of this practice being favourable, he published an account of them in 1817. In the same year Gutherie published a series of observations of a similar character. In many of the military hospitals of

Great Britain, at Dover and at Chatham, as well as at Edinburgh, the syphilitic patients were now universally treated according to the plan of Rose. In 1818, Professor Thompson of Edinburgh, communicated to the profession his experience in the treatment of syphilis in the military hospital of that city, without mercury; and soon after appeared the results of Hennen's observations upon the effects of a similar treatment pursued in the hospitals of the north of England.

"This revived mode of curing the venereal disease became soon to be almost universally followed by the surgeons of the English army; and from the communications which quickly succeeded each other, from Hill, Bartlet, Alcock, Sommerville, Todd and others in Great Britain, as well as from the observations made public by Rousseau, Stevens, Ware, Phiney, Harris and others in America, who all declare that by means of the non-mercurial practice they continue to obtain the most favourable results, we must gradually become convinced of the possibility of effecting in this manner a radical cure of the disease.

"Even before the proceeding observations became public, an anonymous writer in France directed attention to similar facts, in a work entitled '*Sur la non-existence de la maladie vénérienne*,' which, however, from the circumstance of the name of the author being concealed, was regarded rather as a satire than as communicating the real sentiments of a sceptic, and was of course soon forgotten. Now, however, taught by the principles of the Broussain school, the pupils of the latter, especially Lefebvre, Richond, Bobillier, and Jourdan, boldly deny the existence of a specific venereal virus, and treat the disease simply as an inflammatory affection.

"The foregoing facts and observations were by no means unknown in Germany; they were held here, however, in very little esteem. From *a priori* inferences, the non-mercurial treatment of syphilis, was considered by the physicians of this country to be insecure, and of course rejected. Neither the surgeons of the army nor the directors of the great civil hospitals, showed any inclination whatever to test the accuracy of the observations reported by the English surgeons. It was not until the year 1826, that the result of the non-mercurial treatment, as pursued in two of the German hospitals, was made known. Brüninghausen first introduced the practice into the military hospital at Würzburg, and Fricke in the general hospital of Hamburg. In the works cited below, the treatment pursued in each of these institutions, will be found accurately described.*

"I will here present a summary of the established mode of treating the venereal disease, pursued in the general hospital of Hamburg, and then give, as I promised in a former communication, the result of the same down to the 10th of January, 1827.

"The treatment is commenced by drawing from the arm from four to twelve ounces of blood, according to the constitution of the patient and the inflammatory character of the ulcers. If the latter continue to be painful, the bleeding is repeated on the second or third day. The patient is confined to his bed during the whole continuance of the disease. His diet consists of *wasser suppe* morning and evening; and four ounces of wheat bread at noon, with some light pulse. At the same time he is given some opening medicine; ordinarily a solution of an ounce and a half Glauber's salts in six ounces of water, in the dose of a spoonful every three hours; so that it may produce from three to four stools daily. If a diarrhœa occurs the opening medicine is discontinued, until it ceases. The local treatment of the chancres is regulated according to the character they assume. When they are of a very bad appearance, with callous, elevated, and uneven edges, and extremely painful, leeches are applied, followed by emollient poultices. The condition of the chancres are, however, upon the patient's admission into the hospital, often such as to require them to be covered with rags, kept constantly wet with *aq. saturnina.* After some days, in those of a less inflammatory character, a solution of white vitriol, diluted sulphuric acid, zinc, lime water, aqua nigra, &c. is substituted for the saturnine solution. Under this treatment venereal ulcers upon the genitals are without exception entirely healed.

* Handschuh uber die Behandlung der Syphilis ohne Merkur. Wurzburg, 1826. Gunther uber die Behandlung der S. ohne Quecksilber in allgemeinen Krankenhause zu Hamburg. In Graefe und Walther Journal. Bd. xi. Hft. i. 1826. An account of my treatment will be found in Rust's Magazine, Vol xxi. No. 2. 1826.

"The resolution and reabsorption of buboes we endeavour to procure by means of a strong pressure made by applying weights upon the parts, from which we are not deterred by the severe pain often produced. In many cases the resolution is affected by this means, when already a deep-seated fluctuation is perceptible. If, however, resolution does not occur, suppuration is promoted by the application of emollient poultices, and the bubo is opened by the knife. It is then covered with charpie, at first dry, but afterwards kept constantly wet with either of the above mentioned fluids; finally, to accelerate the healing of the sore it is touched with caustic. Warts are removed by means of the knife or some escarotic, and the wound thus produced is treated as a chancre.

"The number of venereal patients which were under treatment from the 18th of July, 1825, to the 1st of January, 1827, was in all 402; namely, 101 males and 301 females. Of these, 308 laboured under primary lues, that is to say, chancres upon the genitals, buboes and warts; namely, 51 males and 257 females; 54 were affected with secondary syphilis; disease of the throat and bones, eruptions, and buboes not preceded by any local infection; namely, 36 males and 18 females; and 40 were complicated cases of primary and secondary lues, viz: 14 males and 26 females. The time these patients remained in the hospital is clearly shown by the annexed table. It will there be seen that the mean duration of the cure by means of the antiphlogistic treatment was fifty days, while formerly, when the mercurial treatment was pursued, almost double that period was required.

"*Table showing the number of syphilitic males which from the 18th of July, and of syphilitic females which from the 25th of October,* 1825, *unto the 1st of January,* 1827, *were treated in the General Hospital of Hamburg, by the antiphlogistic plan; and the period of their sojourn in the hospital from the day of their reception to that of their discharge.*

	PERIODS OF DETENTION IN HOSPITAL.																																			
	From 1 to 10 days.			*From 11 to 20 days.*			*From 21 to 30 days.*			*From 31 to 40 days.*			*From 41 to 60 days.*			*From 61 to 90 days.*			*From 3 to 4 months*			*From 4 to 6 months*			*6 months and over.*			*Totals.*								
	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.	Males.	Females.	Total.						
Primary syphilis,	2	11	13	6	65	71	7	46	53	11	33	44	10	40	50	6	36	42	2	16	18	1	3	4		7	7	51	257	308						
Secondary syphilis,	1		1	4	4	8	4	2	6	6	6	12	9	2	11	10	3	13		1	1	1		1	1		1	36	18	54						
Primary and secondary s. unit'd,				1	2	3	2	2	4	1	4	5	5	1	6	4	7	11	1	7	8		1	1		2	2	14	26	40						
Totals.	3	11	14	11	71	82	13	50	63	18	43	61	30	13	73	20	46	66	3	24	27	2	4	6	1	9	10	101	301	402						

D. F. C.

Art. XV. *De Aneurysmatibus Arteriarum Cerebri.* Auctor Armin. Alb. Aug. Stumpff; Saxo-Borussus. 4to. pp. 35. Berlin, 1836.
On Aneurism of the Cerebral Arteries. By A. A. A. Stumpff.

Few diseases have attracted less attention from pathologists than the one which is the subject of this short dissertation. Although marked throughout by great obscurity in their pathognomic symptoms, and hence identified with difficulty, aneurismal swellings of the arteries of the brain are by no means of infrequent occurrence, and give rise not only to extreme pain and distress, but also, in consequence of the pressure they exert upon the brain itself or the origin of various nerves, often impede the free performance, or even cause a complete suspension of important functions. Every thing connected with them is deserving of an attentive study on the part of the physician.

The treatise of M. Stumpff, although imperfect in many particulars, presents, nevertheless, a very excellent account of the phenomena attendant upon the formation of aneurism within the cranial cavity; the circumstances under which they ordinarily take place, and the morbid appearances detected in the bodies of those who have suffered during life from this disease.

The author commences his remarks by the history of a fatal case of intercranial aneurism that fell under his own notice, which affords a very excellent delineation of some of the more striking symptoms to which the disease ordinarily gives rise, as well as of its most frequent termination.

An individual twenty-two years old, who had previously enjoyed apparent good health, with the exception of frequent attacks of pain in the head, especially after muscular exertion or taking stimulating drinks, in the use of which latter, however, he was not known to indulge to excess,—was on the 4th of September, 1835, suddenly seized, after being engaged in severe labour, with such intense vertigo and pain of the head as to be at once prostrated and, for a time, deprived of his reason. On coming to himself he complained of the most violent pulsating pain over the whole head, which deprived him of sleep and destroyed his appetite for food; his bowels were at the same time costive. On the eighth day of the attack he was received into the hospital. The pain of the head was still violent; the face and eyes were red; the patient was intolerant of light, and in consequence kept his eyelids closed, and lay with his head bent backwards and burrowed in the pillow. There was slight fever. The pains of the head exhibited a remittent character, but even in the interval of the exacerbations, the patient suffered severely, and he passed his nights without sleep and in the utmost distress. On the 12th of September an intermission of the pains took place for a day or two, when they again returned with increased violence. On the 15th a very severe paroxysm occurred and terminated in spasms. The flushing of the patient's face, and the state of his pulse evinced an excited condition of the vascular system, with determination of blood to the head. The case was treated by purgatives and antiphlogistic remedies, and on the 19th of September the pains of the head had nearly all ceased; the patient however still complained of pain of the limbs, which was removed by the warm bath. A gradual improvement was observed to take place from this time, and on the 24th of the month the patient was discharged from the hospital apparently well.

In a short time, however, the pains in the head returned, but with less violence. The patient experienced in his right eye a heavy, dull pain, especially when the eye was exposed to too bright a light; the ball of the eye was thrust forwards and almost completely deprived of motion; the pupil was fixed and dilated; the superior eyelid was relaxed and no longer was moveable at the will of the patient. The eyes exhibited but little redness, the pupils were perfectly

clear, and vision was but little disturbed. The left eye exhibited no marks of disease, with the exception of slight redness of the conjunctiva and increased sensibility to light. Being readmitted into the hospital, November 22nd, blisters were applied to the temples. In the evening no symptoms threatening apoplexy were observed; and the patient slept soundly until about midnight, when his respiration became suddenly stertorous and difficult, and he was roused from his slumbers by an attack of convulsions. His face was now pale and distorted by spasms; his eyes were fixed and staring, both pupils dilated and immoveable; the heat of the surface was diminished, and the pulse suppressed. A second attack of convulsions similar to those of epilepsy occurred within a short period, and affected the whole body; the urine and fæces were passed involuntarily. After a brief intermission the attack of convulsions was again repeated, and terminated in death. On examining the body by dissection, the cause of the sudden termination of life was found to be an extravasation of blood, extending over the anterior part and basis of the brain; occupying, especially, the fossæ Sylvii and the middle portion of the base of the scull, and causing a separation of the sulcus between the central and anterior lobes of the cerebrum to the extent of from eight to ten lines. The extravasated blood was found to have proceeded from the rupture of an aneurismal sac situated at the angle formed by the union of the cerebral carotid and the artery of the fossæ Sylvii. The aneurism was about the size of a filbert nut and of a perfectly oval form. The diameter of its neck was about one line, this was united with and was formed of the proper coat of the artery, which was here tolerably smooth, both internally and externally, and somewhat thickened. The parietes of that part of the tumour which presented towards the base of the cranium and exerted compression upon the oculomotor nerves, were less smooth and pellucid than at its neck, and of a reddish colour, and pultaceous consistency. It was here that the rupture of the sac had taken place; it was from two to two and a half lines in extent, ragged and covered with a coagulum which adhered to the internal surface of the sac. The substance of the brain surrounding the aneurism, as well as that in contact with the extravasated blood, appeared softened, in the same manner as is generally observed in cases of apoplexy. The vessels of the brain were over distended with blood, and minute bloody points were presented on cutting into the medullary matter: the brain was, in other respects, healthy. The only morbid appearances detected in the chest were an earthy concretion in the left lung, and a partial change of the semi-lunar valves of the heart into cartilage and bone. The abdominal viscera presented no marks of disease.

In addition to the history of the foregoing case, the author presents a synopsis of the cases of aneurism of the cerebral vessels, recorded by Hodgson, in his Treatise on the Diseases of the Arteries and Veins; by Serres in the Archives Générales de Médecine, for 1826; by Jennings in the first volume of the Transactions of the Provincial Medical and Surgical Association; by Chevallier, in the London Medical and Physical Journal for 1828; by Blaire, in the second volume of the Transactions of a Society for the Improvement of Medical and Surgical Knowledge; by Nebel, in the second volume of the Handbuch der Pathologischen Anatomie for 1816; by Breschet, in his work on Aneurisms, and by other medical writers.

To these succeed some general pathological remarks upon the case, the history of which is given in the commencement of the Treatise; we have only space, however, for a condensed view of the author's remarks upon the causes, symptoms, and effects of cerebral aneurisms generally.

Among the most usual causes of aneurismal dilatation of the arteries of the brain, he includes all those circumstances which have a tendency to produce an active congestion of the vessels of the head; as, organic diseases of the heart, especially hypertrophy of the left ventricle; diseases of the large vessels, such

as an abnormal structure of their valves, or ossification of the parietes; certain occupations, particularly such as require active and prolonged muscular exertion, and intemperance in the use of intoxicating drinks. Among the more chronic causes, he signalizes inflammation of the coats of the cerebral vessels, and its consequences.

The symptoms indicative of the existence of an aneurism within the cranium are, during the lifetime of the patient, unquestionably obscure and uncertain—many even of the more prominent of them may be produced by other and very different affections of the brain, none of them taken separately can be considered strictly pathognomic; hence, it is only from a close attention to the history of the case, and by taking into account the concourse and mode of occurrence of the symptoms, that any approach to a correct diagnosis can, we apprehend, be made. This difficulty is, however, in a therapeutical point of view, of less importance than in almost any other diseases, as the symptoms which occur, whether they be produced by aneurism within the cranium, or by any other cause, will indicate a plan of treatment proper in either case.

When the aneurism is of little extent it gives rise to a continued vertigo and pulsating pain of the head. These symptoms may be so constant and intolerable, that the patient is unable to move his head, without experiencing the utmost agony; is deprived of sleep at night, and is induced to burrow his head in his pillow, or to press it against some hard body in hopes of obtaining relief. To the above symptoms are added the sensation as if a foreign body were inclosed within the scull, which, upon the least inclination or movement of the patient's body, appears to be about to burst the head asunder. This distressing feeling is produced also, or augmented by whatever occasions an increased impetus of the blood to the brain, or impedes its free return from thence, as the abuse of intoxicating drinks, violent muscular exertion, &c.

When the aneurism has attained to its utmost size, the symptoms of oppression of the brain are greatly augmented; the face of the patient has a stupid look, expressive of mental dulness and indifference; he experiences an obtuse constrictive pain with a sense of weight of the head; he is compelled to rest the latter upon his hand; in the absence of intense pain he is silent, and indisposed to thought; his tongue is paralyzed, and his mind oppressed, stupid and indifferent, giving to him the appearance of one bereft of reason. The symptoms here described may indeed give place to those of furious mania.

The onset of maniacal symptoms is usually marked, however, by a considerable determination of blood to the brain, by which probably an aneurism in the brain may at the time be produced, or the one already existing may be suddenly increased in size or its sac ruptured.

Affections of different organs of the body are connected less with the size or extent of aneurisms of the cerebral arteries, as from the portion of the brain in which they are seated, and in consequence of which they exert compression upon particular nerves, and thus impede or destroy their functions. In the instances of aneurism within the cranium hitherto observed, the tumour was always observed to occur at the base of the brain, between the bony basin of the scull and the cerebrum, near the sella turcica; from which part many nerves are given off, some of which are of course liable to become compressed by the aneurism, and to have, in consequence, their functions impeded. In the case related by the author, compression of the oculomotor nerves by an aneurismal tumour, thus situated, gave rise to paralysis of the iris, ball of the eye, and superior eyelid. In other cases from the tumour being so situated as to compress either the optic nerve, or some branches of the trigeminal nerves, amaurosis or defective smell or taste were produced. Complete or partial paralysis of one or other side of the body may result from a difference in the situation of the aneurismal tumour.

Aneurism of the cerebral vessels, when of sufficient size, and so situated as

to press upon a considerable surface of the brain, may give rise consecutively to chronic inflammation of its substance or to that particular disorganization which has been denominated ramollissement.

The aneurism itself may terminate either by a spontaneous cure, the sac becoming obliterated and converted into a solid tumour of more or less magnitude, or from a rupture of the sac, an extravasation of blood may take place within the cranium or within the substance of the brain, and give rise to all the phenomena of apoplexy, or to paralysis of certain muscles; or in consequence of the irritation of the brain resulting from the aneurism, or indirectly produced by it, inflammation of that organ may take place, or a change, as we have remarked, may occur in its organization.

Aneurisms within the cranium are most commonly sooner or later destructive to life, or impair permanently the functions of certain organs. Of the cases of the disease which have been observed, one instance only is recorded, in which a natural cure took place and the patient's health was completely restored, while six are stated to have terminated in rupture of the sac and the production of apoplectic symptoms.

To the dissertation is appended an interesting table presenting a brief conspectus of the cases of aneurism of the arteries of the brain, described by different writers, together with the more important of the facts which have been noted in relation to them. D. F. C.

Art. XVI. *Conspectus Morborum Auris Humanæ. Dissertatio Inauguralis Pathologico-Therapeutica.* Auctor Julius Lobethal. 8vo. pp. 91. Berlin, 1833.

A View of the Disease of the Human Ear. By Julius Lobethal.

With the different diseases to which the human ear is liable, we are as yet imperfectly acquainted. Of the true character of several of the morbid states of the internal portions of the organ, we are unable to judge during the life of the patient, and even after death an examination of the affected parts is attended with considerable difficulty. It is to these circumstances that we are in great measure to attribute the comparatively slight attention which many of the diseases of the internal ear have received. The pathology of the auditory organ is, nevertheless, a subject of very great importance, and demands a full and satisfactory investigation on the part of those who possess the requisite talents and opportunities.

The work before us, while it presents a very accurate summary of the existing facts in relation to the more prominent affections of the organ of hearing, in the collection of which, the author has exhibited great industry, adds nothing whatever to our previous amount of knowledge. As the production of a student it deserves, nevertheless, unqualified praise.

The first disease treated of is, of course, inflammation of the ear. The symptoms laid down by the author as diagnostic of this disease, are those peculiar to the more acute and aggravated cases of inflammation seated within the cavity of the tympanum. In the cases of ordinary occurrence many of the symptoms he describes are often wanting, while others occasionally present themselves, which he has neglected to enumerate.

"Otitis, he remarks, is indicated by an ardent, pulsating, tensive, and lancinating pain in the affected ear, with fever, for the most part intense; a full, hard and frequent pulse, cephalalgia and a sense of constriction in the head, inquietude, great anxiety and watchfulness; frequently delirium; cold extremities; fainting, and torpor of the limbs. There is a ringing in the ears with an obtuse or morbidly acute sense of hearing. Sometimes the fauces about the orifices of

the Eustachean tubes, the tonsils, teeth, and even the brain itself become likewise affected. There is some diversity in the symptoms according to the seat of the inflammation; if the meatus externus and cerumenal glands are involved in the disease, the lining membrane of the former is red and swollen, and the slightest touch applied to any part of the ear is productive of an increase of pain. If the inflammation is confined to the middle and deep seated parts of the organ, there is no appearance of either redness or swelling in the meatus, but a deeply seated pain in the ear is experienced by the patient, and his hearing is usually rather more acute than obtuse. Should the inflammation not be discussed at an early period, the pulse becomes small and frequent, violent pains are experienced in the occiput, eyes, muscles of the chest and temple; furious delirium supervenes, followed by convulsions and sopor; the power of speech is impaired; the extremities become cold; the patient is liable to syncope; and death finally results. When the disease terminates favourably, it is generally about the fourth or fifth day, by resolution or some critical evacuation."

Although we may admit the foregoing to be a tolerably accurate description of a violent attack of acute otitis, we cannot receive it as one applicable to inflammation of the ear in general. Were the physician to be guided by it in forming his diagnosis, he would be apt to overlook many cases of otitis, terminating in an entire destruction of the organ of hearing. The fact is, in some instances, the symptoms of otitis are extremely obscure, while in others they are so completely masked by those dependent upon some sympathetic affection, especially of the brain, that the seat of the disease is not suspected; this is particularly true when otitis occurs in infants and young children. Of the chronic form of inflammation of the ear, to which scrofulous subjects are liable, our author has furnished no description.

A very common and generally unfavourable termination of the more deeply seated inflammation of the organ of hearing, is in suppuration. This, according to our author, is to be anticipated if a resolution of the disease does not occur within six or eight days; while at the same time, the pains increase in violence and the patient experiences a throbbing in the affected ear. As suppuration progresses, the pain gradually abates, and finally disappears; a tumour forms behind the ear, or a sense of fulness is experienced within it. The pus is discharged either through a perforation of the membranum tympani or by the Eustachian tube, or it may be retained within the cavity of the tympanum, and cause the destruction of all the surrounding parts.

The very great tendency of otitis to suppuration, and the danger of the sense of hearing becoming, in consequence, impaired, point out the necessity of a close attention to the early symptoms of the disease, in order that they may be removed by prompt and efficient remedies. This is especially the case in young children, in whom inflammation of the ear is of frequent occurrence, and apt to be overlooked or confounded with other diseases.

As causes of otitis the author enumerates mechanical injuries, wounds, and concussions of the head, violent percussion of the temporal bones, foreign bodies admitted into the meatus, hardening, accumulation or some other morbid state of the cerumen, abuse of injections into the external meatus, the imprudent use of ear picks, difficult dentition, especially in the case of the last molar teeth, caries of the latter, of the small bones of the ear or of the mastoid process, nocturnal dissipation or prolonged study, a rheumatic, gouty, syphilitic or herpetic taint in the system, metastasis of acute fever, the exanthemata, suppressed hæmorrhages, especially nasal hæmorrhage; obliteration of the Eustachean tubes, hysteria and hypochondriasis, and all the ordinary causes of inflammation or whatever gives rise to a congestion towards the ear.

The *treatment* of otitis as laid down by our author is extremely judicious. He points out the propriety of an early resort to blood-letting, either by venesection or by leeches or cups applied in the neighbourhood of the ear, to the neck, or occiput. In some instances both general and local blood-letting will

be demanded, and we may remark that there is no case in which we can with propriety dispense with the free application of leeches behind and around the ear. The other antiphlogistic remedies are to be resorted to according to the circumstances of each attack. If the disease has been preceded by suppressed hæmorrhage, or by the sudden disappearance of any disease of the skin, we are directed to employ means adapted to cause their restoration. As local remedies after blood-letting, injections into the ear of milk and water, of a decoction of mallows or other mucilaginous fluid, together with anodyne fomentations and poultices externally applied, are recommended. The steam from a decoction of narcotic herbs may likewise be directed into the meatus by means of a funnel. The application of mecurial ointment to the mastoid process has been supposed beneficial in some cases of otitis; blisters behind the ear or to the back of the neck are very generally recommended, while some physicians direct them to be applied also to the wrists and ancles, which is no doubt proper in all violent cases of the disease. To keep the patient perfectly still and in a room of a moderate but even temperature, as well as to guard him as much as possible from every species of noise, is so evidently proper as scarcely to require notice.

When it is found that a resolution of the inflammation cannot be effected, but that suppuration is about to take place, we are advised by our author to endeavour to promote the speedy formation of pus and cause its prompt discharge, so that injury to the internal structure of the ear, or the formation of a foul and chronic ulcer may, if possible, be prevented.

To this end emollient poultices are to be applied to the affected ear, the vapour of warm water directed into the external meatus, or we may introduce into the latter tepid water and honey, small portions of fresh lard, or some tepid mucilaginous fluid. Occasionally the pus is discharged by the Eustachean tubes, to promote which, gargles are to be employed, or the fumes of tobacco may be drawn into the mouth, and by closing the lips and nostrils forced by an effort at expiration into the orifices of the tubes. Generally, however, the pus perforates the membranum tympani, and is discharged by the external meatus. The author very properly remarks that to wait until a spontaneous perforation of the membrane takes place, very generally endangers the hearing, for the pus accumulating within the tympanum produces such extensive injury previously to finding a passage externally, as to destroy permanently the functions of the organ. To prevent which the membrane should be artificially punctured as soon as possible after the formation of pus. The operation is trifling of itself, and while it gives a free exit to the matter, does not in the least impair the hearing.

In regard to the purulent discharge from the ear that so frequently succeeds to inflammation of that organ, especially when the disease has been neglected or badly managed in its earlier stages, and which is one of the most obstinate and troublesome affections the physician is called upon to treat, the author directs the ear to be kept constantly clean by a cautious use of injections, at first of some mild tepid fluid, and subsequently of a slightly astringent wash. A great number of injections have been recommended for this purpose, such as tepid water, honey and water, infusion of chamomile flowers, the juice of rue with vinegar or tincture of myrrh; and when astringents become proper, lime water, solution of corrosive sublimate, of white vitriol, of verdigris, of carbonate of potass (an ounce to a pint of water,) decoction of the leaves of the rumex acetosolea, one part to six of honey of roses or the juice of houseleek. To them may be beneficially conjoined derivatives, blisters, setons, purgatives and warm coverings to the ear.

Injections into the meatus, however, are to be employed, we are told, in purulent otorrhœa, only with the greatest caution, as even the mildest of them

when rashly resorted to are liable to cause a sudden arrest of the discharge from the ear, and, in consequence, to give rise to dangerous symptoms.

"Should the discharge, "remarks the author," become suddenly suspended, either from cold, some affection of the mind, or an improper use of astringent injections, means should be promptly resorted to to re-establish it. Itard recommends as the most efficacious plan for this purpose, to cover the whole side of the head corresponding with the affected ear, with bread newly drawn from the oven and deprived of its crust, its application to be renewed every three hours, and at the same time to inject into the meatus externus a solution of corrosive sublimate, three grains to eight ounces of water."

Inflammation of the external meatus is described by our author as a specific disease, under the denomination *Catarrhus aurium.* As this is a very common affection in children, and one not of unfrequent occurrence in adults, giving rise when neglected in its earlier stages, or improperly managed, to a very troublesome, obstinate and disgusting discharge from the ear, and occasionally destroying the hearing, we shall translate the description of the disease given by Mr. Lobethal, which so far as it goes is extremely accurate. He divides catarrh of the ear into three periods:—

"1st. The period of inflammation. The most constant symptoms of this period are; a sense of fulness in the meatus auditorius, soon accompanied with pain more or less severe, never, however, to the same extent as is usually experienced in otitis. The head also becomes affected with an obtuse, constrictive pain, the patient experiences a ringing in his ears or a difficulty of hearing, he is subject to horripilations, followed by slight fevers, for the most part towards evening, with an exacerbation during the night. The internal surface of the external meatus becomes red and swollen, and usually an increase of pain is experienced from the slightest touch. Ordinarily after twenty-four hours duration, but sometimes sooner, this period changes into the—

"2nd period, or that of crisis. All the local symptoms, the fever and inflammation gradually subside, and great relief is experienced upon the occurrence of a copious discharge from the ear of a puriform fluid of either a yellow or whitish colour, and generally of a fœtid odour; which is preceded usually by an excretion of serum, sometimes streaked with blood. Upon examination the lining membrane of the meatus auditorius will be found to be still swollen. After two or three weeks the discharge usually diminishes, acquiring the consistency and odour of cheese, and then entirely disappears, while the secretion of healthy cerumen is speedily re-established. But so favourable a termination does not always take place, the disease frequently passing into the

"3d period, or that of blennorrhœa. The morbid secretion from the lining membrane of the meatus still continues—there being a copious discharge of thick mucus, of either a yellow or greenish colour, and of an intolerably fœtid smell; this discharge will sometimes persist for many weeks, frequently for months and years, notwithstanding every effort on the part of the physician to restrain it."

Among the causes predisposing to catarrh of the ear, the author enumerates as the most common, cold, especially in persons of a lax fibre liable to catarrhal affections, or who are exhausted by chronic diseases or other causes, a humid and cloudy state of the atmosphere, such as prevails in autumn and winter, defect of clothing, damp residence, &c. Infants are especially liable to this affection, particularly such as are of a scrofulous habit, herpetic, or subject to tinea capitis, or who, immediately upon recovering from an attack of small-pox, measles, or scarlet fever, are imprudently exposed to cold. The disease is said to be sometimes caused by a metastasis of scrofulous ophthalmia, or it may result from irritation of the ear, either from mechanical causes or transmitted to it by sympathy.

The treatment of catarrh of the ear is very briefly considered by our author. It is true that in perhaps the majority of cases, the physician has no opportunity of seeing the disease in its first stage, as it seldom attracts the attention of parents until the discharge from the surface of the meatus has taken place, but whenever it is in his power to direct his remedies so as to reduce the inflamma-

tion previously to the appearance of the latter, the tedious and disgusting ottorrhœa to which the disease gives rise, may in general be prevented; but when once established, its cure often baffles our utmost skill.

According to M. Lobethal the first stage of catarrh of the ear is to be treated by leeches, if the inflammation is of any extent, and by a moderately antiphlogistic regimen. In the second and third stages the same remedies are proper, as were directed in suppuration of the ear succeeding to otitis, together with a properly regulated diet, and regimen, and light bitters, and tonics.

The chapter on sympathetic or cerebral ottorrhœa is almost entirely copied from Itard's "*Traité des maladies de l'oreille et de l'audition*" published in 1821.

The sections which treat on "foreign bodies in the ear" and on "otalgia," though extremely short, present very useful views in relation to those subjects.

Almost two thirds of the work are devoted to a consideration of the morbid states of the auditory function; Dysœcia, Baryœcia and Cophosis. Under this head we discover nothing particularly interesting. The opinions, experience, and directions of the more celebrated writers upon the diseases of hearing, are, it is true, concisely, but accurately stated; no additional light, however, is thrown upon the causes of defective and depraved audition, nor any more effectual means for their prevention and removal, than those with which we are already acquainted.

The concluding sections present some observations upon the humming, ringing, singing, buzzing and other sounds so often experienced in the ear, either as a symptom of various affections of the organ itself, or of other parts, or in the absence of any very apparent disease. D. F. C.

Art. XVII. *Vierzehnter Jahresbericht des Königlichen Poliklinischen Institutes der Universität zu Berlin, umfassend die Jahre* 1830, 1831, 1832, 1833, *u.* 1834. Von Dr. E. Osann, &c. 8vo. pp. 106. Berlin, 1835.

The Fourteenth Report of the Polyclinic Institute of the University of Berlin, embracing the years from 1830 *to* 1834, *inclusive.* By Dr. E. Osann.

The Polyclinic Institute of the Berlin University was established in 1810, for the purpose, as well of affording medical and surgical aid to the poor, as to supply clinical instruction to students. Within the twenty-four years, during which it has been in existence, the number of patients received into the institution amounted to twenty-four thousand three hundred and twenty-four; affected with the following disease, namely:

Fevers,	2,430
Inflammations,	2,034
Diseases of the skin,	1,832
Nervous affections,	3,000
Chronic diseases of the respiratory organs,	2,092
Diseases of the digestive and assimilating organs,	2,359
Diseases of the genital and urinary organs,	834
Dropsies,	500
Gout and rheumatism,	772
Scurvy and rickets,	999
Syphilitic affections,	408
Surgical diseases,	3,161
Diseases of the eye,	3,903

Of these 24,324 cases, 17,025 were cured; 731 died, and the remainder were either removed to other hospitals or continued under treatment. Besides the young physicians who attended the practice of the institution during the period above specified, the number of practitioners amounted to 884. The number of

the latter would have been greater, had not the rules of the institution required that only a certain proportion of the prescribing physicians should be continued over six months.

The report before us is divided, exclusive of the introduction, into three parts. The first comprises remarks upon the prevailing character of the diseases during the five years embraced in the report. The second, general observations upon the nature, course, and treatment of the more interesting cases, which fell under the care of the institution during the same period; and the third embraces a tabular view of all the diseases treated, with their results.

To enable our readers to judge of the manner in which these reports, from the different medical institutions of Germany are prepared, we present a translation of the fourth section of part second of the report before us.

"The cases of nervous diseases treated during the five years amounted to 527; of these 81 were of *Cardialgia;* 74 of *colic;* 65 of *hysteric affections;* 62 of *hooping cough;* 60 of *Cephalaeæ;* 37 of *epilepsy;* 25 of *eclampsia* and *spasms;* 21 of *paralysis* and *paresis;* 19 of *difficulty of hearing;* 17 of *delirium tremens* and *tremor artuum;* 15 of *debility of the nerves;* 13 of *vertigo;* 11 of *chorea;* 6 of *apoplexy;* 6 of *ischias;* 4 of *phantasmoscopia;* 3 of *melancholia* and *mental depression;* 3 of *tetanus* and *catalepsy;* and 3 of *prosopalgia.*

"We received much satisfaction from the successful treatment of a case of tetanus and trismus occurring in a child eight years old. The patient, a healthy, slender girl, born of healthy parents, had never suffered from scrofula, and had passed safely through the usual diseases of infancy; about four weeks previously to the present attack she had recovered from an attack of natural small pox without medical aid. One morning seeing a beggar who was pursued by an officer, rush out of a house opposite to which she was playing in the street, and supposing he was hastening to seize her, the child was so much frightened that she ran home with the utmost speed, flew up three pair of stairs, and throwing herself in the arms of her mother, became immediately insensible. Her body was covered with a cold sweat, her breathing short, her eyes fixed with the lids half closed, the trunk of the body was rigid and bent backward—the limbs were affected with spasms—the mouth was covered with foam—the jaws were firmly closed, so as to present a space of only a few lines between the teeth. After the child was placed in bed the spasms of the extremities diminished and affected only single groups of muscular fibres; the tetanic rigidity of the trunk and jaws continued. The condition of the patient when admitted into the institution was as follows: The trunk of her body was immoveably bent backwards; the muscles of the back and of the jaws were hard to the touch, and no longer obedient to the will. The patient's consciousness had become partially restored; she however only indicated by her moans that pressure upon the affected parts caused her pain. Her pulse was irregular, varying in frequency and small. She was immediately ordered calming and anti-spasmodic injections, frictions of the extremities with warm cloths, warm baths of caustic potash in which she remained a half hour daily, and as soon as she was able to swallow a solution of carb. pottass, warm chamomile tea and occasional doses of castor oil to keep the bowels open.

"By this treatment, more especially repeated bathings in the alcaline solution, a general perspiration of considerable duration was produced, and all the spasmodic symptoms were relieved; and by the end of the third week there remained only a slight curvature of the spine at its upper part, while a spoon could now be inserted readily between the teeth. By the end of the fourth week all the symptoms of disease were removed, save a slight projection of the shoulder blades, posteriorly arising from a tonic spasm of some of the muscles inserted into them; under the use of *rad. valerian.* in the form of infusion, with the addition of *herb. meliss.* and *sem. anisi* the patient was perfectly restored.

"The greater number of the cases of chorea occurred in young females, suffering from an increased sensibility predisposing them to spasmodic attacks. They were frequently complicated with irritation from worms in the intestines, more seldom with rheumatic affections.

"Besides those remedies indicated by particular causes or complications of the disease, the use of the flowers of zinc was the most frequently followed by good effects, given in gradually increased doses (to a child, seven grains repeated several times in the course of the day) so as not however to disturb the digestion.

"As well in regard to the age of the patient as to the unusual form of the disease, the following case of chorea deserves a special notice.

"Caroline S. 21 years old, in the seventh month of pregnancy, was after exposure to severe cold, suddenly attacked with an involuntary spasmodic twitching of the limbs, particularly of the right side, which the patient could not by any effort of the will suppress. The spasms continued day and night, and subsequently extended, though in a less degree, to all the voluntary muscles; so that when the patient on the eighth day applied to the Institution for relief, she could with difficulty walk, or speak coherently. She likewise laboured under some degree of rheumatic fever, had a fixed pain of the left hand, and some disturbance of the digestive organs. After the fever and stomachic disease were removed, she was placed upon the use of *flor. zinc.* in gradually increased doses, in conjunction with a diaphoretic regimen. The spasmodic movements and pains soon ceased, and the debility of the limbs which remained was removed by the local use of the *ungt. nervini.*

"Four patients affected with lead colic were treated.

"B. a painter, 42 years old, of a meagre habit and apparently very feeble constitution, had already suffered from two attacks of the disease—nevertheless he had enjoyed good health for some time past. On the 4th August, 1834, while painting the inside of a close house, he became very much heated, and was immediately attacked with colic. He at first experienced only a dragging, twisting pain of the abdominal muscles, which on the second day was accompanied also with the contraction and hardness of the abdomen, about the navel and groins, peculiar to the disease. There was a strong inclination to pass water and obstinate costiveness. The gums were livid, the sweetish taste common in lead colic was not however experienced. The patient was directed a mixture of *liq. ammon. acet. tart. stib. aq. laurocer.*, and the *extr. aconit.* with *kali sulphuratum*, while castor oil was administered daily to act upon the bowels. From this treatment little advantage resulted. An evident improvement in the patient's symptoms was produced, however, upon the exhibition of *natrum sulphuricum* in *emulsio papav.* with *aq. laurocer.* The discharges from the bowels were increased, the pains diminished, and after a warm bath the patient was considered entirely cured.

"The following case terminated fatally—

"L. A. a worker in paints, 16 years old, of light complexion, had suffered in early life from various forms of scrofulous disease; when nearly recovered from an evident attack of lead colic, attended with a weakness of the lower extremities, amounting almost to lameness, he returned imprudently to his occupation, and caused a return of the same symptoms, which after a severe affection of the mind, became accompanied with most violent chronic spasms, and a loss of consciousness. The spasms were repeated periodically; and his consciousness returned only partially. His respiration was deep and stertorous, his pulse frequent, full and soft; his skin warm and moist; his tongue dry and red; his lips were covered with a reddish fur; his abdomen was somewhat tumid, but not hard nor apparently affected with tenderness. The secretion of urine was suspended, the bowels costive. The sopor and periodical spasms continued, notwithstanding every remedy, until the ensuing midnight, when the patient died. The autopsis showed a deficiency of blood in the brain and lungs, a flaccid state of the heart, a contracted state of the ileum, the mucous membrane of which, as well as of the cœcum, was reddened. The spleen was very small and of a firmer consistency than usual; the right kidney was somewhat enlarged, and more loaded with blood than the left, the right lung presented an adhesion of some extent to the costal pleura.

"In the majority of cases hysteria and hysteric spasms were accompanied with a morbid state of the uterine organs, or with obstructions of the liver and portal system.

"Wilhelmina P., an unmarried female, 23 years old, of a blooming appearance, and strong constitution, had for a year suffered from considerable congestion of the head and breast. Her menses had commenced only about twelve months previously, and although since then they had recurred regularly, they were spare in quantity, and accompanied with an increase of the congestive symptoms. To the severe pain and disturbance of the head for some months past were conjoined

periodical attacks of hiccup and considerable oppression of the chest. The latter symptoms were now experienced in the intervals of the menstrual period, after every excitement of the mind, or were induced without any apparent exciting cause. There was first experienced a severe spasm commencing at the præcordia; subsequently, a pain within the breast, with indescribable anxiety, dyspnœa, hiccup, loss of speech, which terminated in general spasms, generally of a clonic character; the patient still retaining her consciousness. To these attacks, which lasted from a half hour to several hours, there succeed a long continued sense of exhaustion and debility. In the intervals the pulse was increased in activity, but regular—the digestion was not perceptibly disturbed.

"After the administration of cooling medicines, a solution of borax with *tinct. croci* and mild nervines, the attacks diminished gradually in severity. The menses flowed freely, and the patient by a continued use of nervines, *rad. valerianæ*, *herb. meliss.* and *flor. camomile*, became entirely relieved from her disease; by country air her strength was completely restored.

"The cases of difficulty of hearing, and *tinnitus aurium*, presented a close relationship to each other, but at the same time, in some degree, differed considerably in their characters.

"In the greater number of instances *susurrus aurium* was connected with pain of the head of a plethoric kind, and according to the varieties in its duration and extent, was accompanied with more or less defect of hearing.

"An interesting case of the disease presented itself in a patient 19 years of age. She was of a plethoric constitution, and often affected with congestion of the head and breast. She had experienced for many years a peculiar noise in her ears, especially the right one. Upon close examination it was found that the noise was not attributable to a morbid state of the patient's hearing, but that it could be observed by another person, on applying the ear close to her's. From six to eight distinct, regular strokes, not isochronic with the pulse, were to be heard, quickly succeeding to each other, accompanied with a crackling similar in tone to that produced by a thin metallic plate; after a short pause, the strokes were repeated in the same quick succession. The patient had experienced this noise formerly only periodically; latterly, however, for some time, it has been almost constant, accompanied sometimes with a pricking pain within the ears, and it appears, in some degree, to have diminished the acuteness of the hearing.

"How readily violent and long continued *susurrus aurium* complicated with obstruction of the abdominal viscera, especially of the liver and portal system, and with a spasmodic disturbance from the increased sensibility of the organism, give rise to hallucinations of the senses, is shown by three cases, which came under treatment almost at the same period.

"In the first case, occurring in a strong plethoric man, there existed merely violent *susurrus aurium*, with a constrictive pain of the head. The second case, occurred in a female suffering from suppressed hæmorrhoidal flux, costiveness, with congestive and hysteric symptoms. She complained, as a consequence of long continued *susurrus* of the right ear, that she heard a voice which existed, as she said, within the skull, and spoke to her from time to time; this was evidently a hallucination. The third case, was in a female 60 years of age, of a plethoric and hysteric habit, and addicted to intemperance, who had formerly suffered from a spasmodic affection of the stomach, and since the cessation of her menses, from considerable determination to the head, vertigo, and almost constant *susurrus aurium*. During the last six months, the hysteric erethism of the nervous system, as well as the noise in the ear, had greatly augmented, and the patient was under the impression that she heard the voices of different persons, almost constantly upbraiding her; notwithstanding, she was convinced that the voices merely resulted from the morbid state of her sense of hearing. At night she often awoke in great distress, when the same voices were audible. A bleeding from the foot, and the continued use of a solution of Glauber's salts, with *aq. laurocer.* and *ext. gratiolæ*, produced some relief from the above symptoms, but only for a short period, as she could not by any entreaties be persuaded to relinquish her intemperate habits.

"In many cases of *delirium tremens*, great advantage was experienced from the

use of large doses of tartar emetic and the mineral acids, especially the *elix. acid. Halleri.*

"The generality of the cases of *paresis* and *paralysis*, were the consequence of apoplectic attacks. In some, the long continued use of *flor. arnicæ* and *ext. nuc. vomicæ spirituos,* was evidently beneficial. In the instance of a female, 18 years of age, affected with paresis of the left upper extremity and spasms, the *strychnin. acctic.* in augmented and finally very large doses, administered endermically, was productive of scarcely any advantage.

"In the cases of *cardialgia* complicated with obstruction of the liver and portal system, and consequent inactivity of the bowels, the administration of the *pulv. æroph. ph. paup.* in conjunction with sulphur, was found particularly beneficial.

"Among the cases of *prosopalgiæ*, one occurring in a female 76 years old, was distinguished by the severity and long continuance of the pain. The cure was effected by the continued use of tartar emetic and aconite.

"In the second period of hooping cough, the use of belladonna and lactucarium, *extr. lactuc. virosæ*, was found very beneficial; in some very obstinate cases, good effects resulted from large doses of tartar emetic, and in one case, from assafœtida in the form of an emulsion.

"Some very interesting cases of organic disease of the brain were observed. In general, from a widely extended diseased condition of the reproductive function, occurring in scrofulous or ricketty habits, there resulted the indications and effects of a morbid developement of the vegetative nervous life of the organism, often existing for a long time without exerting any dangerous influence upon the more important central organs, but not unfrequently in consequence of some accidental, and of itself, unimportant external irritation, or the occurrence of disease in other organs, or the natural developement of the system, arising suddenly to such a height, as to cause an uncommonly speedy termination of life.

"Charles E., a feeble, imperfectly developed child, of three years of age, whose mother had died shortly after its birth of phthisis complicated with disease of the intestines, had suffered for three months from atrophy and diarrhœa, when suddenly symptoms of a dangerous idiopathic disease of the brain presented themselves, the occurrence of which had been apprehended from the enormous size of the child's head. To great apathy were added a spasmodic movement of the limbs and distortion of the eyes, enlargement and sensibility of the pupils; and soon after loss of consciousness with paralysis of the organs of sense. Evening, exacerbation of fever with heat of the head, accompanied by a not very frequent, irregular, and at first, tolerably full and hard pulse, was evident, and from the first so decided as to require an active antiphlogistic treatment. This, however, produced but little effect upon the symptoms of the case. The spasms, it is true, abated for many hours, as the pulse sunk under the constant employment of cold applications to the head, and the use of calomel combined with musk, together with immersion in a bath, to which was added an infusion of *flor. arnicæ* and *camomile.* The stupor, nevertheless, continued, notwithstanding the frequent applications of forcible douches to the head, and death, preceded by convulsions, finally occurred.

"On examining the body after death, no abnormal appearance was discovered in the abdomen, excepting a slight enlargement of the mesenteric glands; in the chest, the left lung adhered in a considerable degree to the costal pleura, the lungs were otherwise healthy, as was also the heart; in the cranium the veins of the brain were overloaded with blood, and the ventricles were distended with a clear serous fluid. The cerebrum, thirty-six hours after death, was so soft as to be almost diffluent. The cortical substance presented numerous tubercles of the size of hazel nuts.

"C. H. was distinguished from birth by the large size of his head; the delivery was in consequence, although effected by the powers of nature, very tedious and difficult. When three months old the child had a severe fall upon his head; subsequently symptoms of scrofula and rickets were developed; the legs were curved and the heads of the bones enlarged, and a few weeks before the child was brought to the institution for treatment it had a second fall from its cradle, by which, as by the first, the head was apparently injured. When admitted the child was 15 months old, (January 3.) He had already cut the four front incisor teeth, and without difficulty. The size of the skull was proportionably very great, equal to

that of a child four or five years old; the occiput in particular was very prominent. Both the fontanelles, as well as the coronal and sagittal sutures, were still open; anterior to the front fontanel there was a tumour tolerably soft, but without fluctuation, of the size of a four Groschen piece. The head hung constantly backwards; and when it was elevated, which it could be very readily, the patient showed by its moans and cries, and by carrying its hands to its head, that it experienced pain; the same was the case when pressure was applied to the head. There was some intumescence of the eyelids, which, according to the statement of the mother, had existed for some time, but varied in its circumference. The pupils were dilated and insensible to light—there was no appearance of squinting; formerly, however, it was stated that the patient could not readily fix the eyes upon any given object, but rolled them about with an unsteady motion; this, however, could no longer be observed. The power of vision did not appear to be affected. The temperature of the head, particularly of the occiput, was very much increased; less so, however, than it was previously to the use of leeches and cold applications; the patient was likewise previously far more unquiet, dragging at the head often with its hands, and drawing the feet spasmodically towards the abdomen. The latter was not swollen, and had a soft feel. There was little appetite; the tongue was somewhat coated; the bowels were costive; the discharge of urine was not diminished; neither vomiting nor spasm had heretofore occurred. For some time an emaciation and evident diminution of strength were observed. The patient, who could already go alone, was not able now either to walk or stand; upon every attempt even to sit upright the head fell over backwards. The pulse was free from all febrile activity.

"From the evidence this case presented of an existing organic disease of the brain, and a chronic inflammation of that organ, the remedies directed were leeches, ice-cold applications to the head; subsequently the application to the surface of *acetum squilliticum* as a diuretic, and inwardly calomel combined with digitalis; and after the reduction of the increased temperature of the head by these means, increased diuresis, augmented sensitiveness to the use of the cold applications, and evident abatement of the sufferings of the patient, were evidenced.

"In the month of February the patient had an attack of measles, which pursued a regular course; the fever, however, was very severe, and the affection of the respiratory organs was so considerable, from the accumulation of mucus, that an emetic was administered. The pupils were less dilated than previously, and appeared more sensible to light. Subsequent to the measles there remained an increased discharge of mucus from the respiratory passages, with great oppression at the chest, rattling respiration, fever and a spasmodic cough, very similar to the *tusis convulsiva;* to this was added a pain of the gums, which, however, terminated upon the appearance of a tooth. Notwithstanding an appropriate treatment, the repeated use of leeches, antiphlogistics internally, and subsequently cooling, soothing remedies, emetics, laxatives and expectorants, the affection of the chest was but little abated. There soon occurred also great apathy, sopor, spasms of the extremities, (viz. of the left arm and foot, while the right were unaffected and of a lower temperature,) and of the muscles of the face, tremors of the tongue, spasmodic movements of the eyeballs, the eyelids being half closed, and spasmodic pains of the abdomen, but without interruption of the fæcal evacuations. Musk appeared finally to act beneficially as a quieting remedy, but its good effects were but of short duration. The child died on the 15th of February. The autopsy exhibited the following results: Between the pericranium and skull there existed at the anterior fontanelle a very extensive extravasation of blood. The inner surface of the cranium exhibited nothing abnormal. Between the dura mater, which at numerous points had formed strong adhesions, there was found about six ounces of a serous fluid, while the ventricles of the brain contained a proportionably small quantity. The vessels of the pia mater, the plexus choroides, and the sinuses were not overfilled with blood; the substance of the brain was firm, and little blood was discovered on cutting into it. The right crus of the cerebrum presented a hardening of the size of a walnut, in the midst of which pus was contained; this will probably explain the spasmodic affection of the left extremities. The lungs exhibited in their upper lobes a great mass of tubercles, some softened and already in a state of suppuration. The bronchial glands were in part hard-

ened; the heart was normal; the liver free from blood, of a bright colour, but of uncommon size; the spleen was not enlarged, but distended with blood. The stomach and pancreas exhibited no marks of disease; the intestines contained a little gas, and not much fæcal matter. In the upper portion of the jejunum a volvulus existed of some inches in extent, the contained portion was on its external surface somewhat reddened; in the residue of the intestinal canal there was nothing abnormal. As no symptom had caused the existence of a volvulus in the early part of the case to be suspected, this was probably formed towards its close, in consequence of the spasm of the intestines. The mesenteric glands exhibited rows of enlarged glands, more or less hardened, of the size of a bean."

We have been induced to present our readers with a translation of the foregoing section of Dr. Osann's report—not so much from the facts and observations contained in it, although these are far from being entirely devoid of interest, as to enable them to judge of the kind of information usually afforded by the periodical reports made by the directors of the numerous clinical institutions of Germany; as well as of the system of therapeutics pursued in the class of cases to which the above extract refers, by a large and highly respectable portion of the physicians of that country.

D. F. C.

Art. XVIII. *Principles of Pathology and Practice of Physic.* By John Mackintosh, M. D., Lecturer on the Practice of Physic in Edinburgh, &c. &c. Second American from the fourth London edition. With notes and additions, by Samuel George Morton, M. D., late Physician to the Philadelphia Almshouse Hospital, and Lecturer on Pathological Anatomy. &c. 2 vols. 8vo., pp. 563 and 538. Philadelphia: Edward C. Biddle, 1837.

We have already expressed a favourable opinion of this work in noticing the first edition of it, (Vol. XVII. p. 447,) and the present one is entitled to higher commendation. It has been considerably enlarged, and some of the errors of the former edition corrected by the author, and a number of interesting additions have been made by the American editor. If we were to enter into particulars, we should still find abundant matter for criticism; but, as a whole, it may be safely pronounced to be much superior to any other of the general systems of the practice of physic that have as yet emanated from the British or American press.

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

ANATOMY.

DESCRIPTIVE, SURGICAL, AND TRANSCENDENTAL.

1. M. Serres *on some of the Laws of progressive developement in the higher animals.*—On examination of the adult skeleton, some parts of it are found to be double, such as the ribs, the bones of the extremities, certain bones of the cranium, &c., while other parts—those namely which are situated in the line of the mesial plane—are single; for example, the spinal column, the sternum, the os hyoides, the vomer, and the ethmoid, sphenoid, and occipital bones.

This mesial *unity* appears at first sight to be opposed to the lateral *duality;* but, if we trace the progress of ossification in the young animals, we at once discover that the central or mesial parts are at first double also—the corresponding or analogous portions being strictly lateral—and therefore that the whole of the osseous system obeys one common law, the law of symmetry or of lateral duality.

We find that in the earlier periods of life, there are two demi-crania, two demi-spines, two demi-sternums, &c. and moreover that the law of double formation affects equally the developement of the softer parts. Thus there are two demi-brains, two demi-wombs, and two demi-livers. Let us examine the formation of the spine a little more attentively.

In the young embryo it is found to consist of two membranous folds, quite distinct or separated from each other, the one being situated on the right side, the other on the left side of the mesial plane. I have observed them in the young chick in about twelve hours after the commencement of incubation.—There are therefore at this early period of formation two demi-spines, just as there are two parietal, and two temporal bones. In from twelve to twenty-four hours subsequently, we perceive on the two sides of these membranous folds numerous yellowish-white points, almost quadrilateral in shape, but having their angles rounded. These are the rudiments of the vertebræ. As the osseous formation advances, the two lateral surfaces gradually approach to each other, until they meet along the mesial line, and form a uniform solid case inclosing the spinal marrow. This soldering together of the lateral halves takes place in the chick from the thirteenth to the fourteenth day of incubation. The dorsal vertebræ are united a good deal earlier than the lumbar and caudal vertebræ. Similar appearances to those now described may be seen in the young human embryo. The double line of osseous points, which are to form the central part of the sacrum, are very distinctly seen in the young embryo. Of all the vertebræ, the atlas is the most tardy in being ossified. It usually remains more or less cartilaginous until the end of the first year, and at this period we observe two lateral points or nuclei, which gradually converge towards each other, to form the body of the vertebra. If the process of developement is from any cause arrested at an early period of fœtal existence, the two

lateral portions of the spinal column may remain disunited, and as it were, cleft through and through, either at one or more points, or along the whole extent of its tract. If this arrested developement has occurred in the bodies of the cervical vertebræ, the œsophagus may enter into the cleft vertebral canal; if, on the other hand, the sacral vertebræ are affected, the rectum will be the part engaged, and this protrusion will sometimes be so considerable as to occasion a herniary tumour outwardly. M. Lisfranc and myself have examined several cases of these anomalies. In the last mentioned sort of malformation—namely, when the rectum protrudes between the cleft sacrum outwardly on the back, we have been enabled to remedy it partially by compressing the herniary tumour, and thus causing the discharge of all the meconium, and afterwards by maintaining the reduction of the gut by means of a compress and bandage. But a more common malformation is that, where the spinal apophyses only of the vertebræ are imperfectly developed, and remain therefore disunited: the spinal marrow and its membranes are protruded through the fissure, and the disease which has been called spina bifida is induced. In some rare cases, the whole extent of the spinal column is in this imperfect state, and the vertebral canal is open throughout from the cranium to the coccyx.

These diseases illustrate and fully confirm the law of double developement of the spine; and, on the other hand, this law affords a satisfactory explanation of their occurrence.

Let it therefore be well remembered that the skeleton is formed of two analogous and similar halves; the one on the right side, the other on the left. Every person knows that the right half is somewhat more strongly developed than the left one—a phenomenon which is observable chiefly in the upper and lower extremities. This predominance is apparent even in the vertebral column; the left half of this column being rather more feeble than the right half.

This relative weakness of one side is the primary cause of incurvations of the spine, as Dr. Guerin first clearly established. In this defect of symmetry we trace the cause of the greater frequency of curvatures towards the right than towards the left side. In a hundred cases of spinal deviation, there is scarcely one, in which the spine is inclined towards the left side. The curvature to the right side does not compromise life to the same degree as that to the left side; and for this reason, that the heart and the great vessels connected with the centre of the circulation are less seriously incommoded. When the curvature is towards the left side, the central organs of circulation are necessarily more impeded in their free play, and life is therefore more seriously endangered.

This is one of the many advantages of a philosophical study of comprehensive anatomy;—an anatomy which is not limited to a mere discovery of the structure of living bodies at one period only of their existence, but which carefully and minutely attends to the multifarious progressive changes which occur from the earlier stages of their developement, to the full maturity of their growth. If an infant have its spine incline towards the right side, the chances are greatly in favour of its life being saved, even although no remedial measures are used for its relief; whereas, if the deformity is on the left side, the utmost care and attention will be necessary to prevent the existing impediment to the circulation and breathing proving fatal at, or about the period of puberty.

It rarely happens that an anatomical truth does not lead to some useful discovery in pathology. The ingenious reasonings of M. Guerin have pointed out a rational and successful treatment in many cases of spinal deformity.—Formerly surgeons were in the habit of endeavouring to rectify such cases by drawing the spine, above and below the seat of the deviation, in opposite directions. M. Guerin, on the contrary, has substituted a method which acts directly on the centre of the deformity, by inducing a curvature in a direction the reverse of that which it is intended to remedy.

We now pass to the consideration of the osteology of the cranium and chest; and in the developement and formation of these parts we shall find that the same laws operate, which, we have attempted to show, influence the growth of the vertebral column.

At first, what is the cranium? If it is, as some authors maintain, to be viewed as an expanded vertebra, or as an assemblage of vertebræ; if the encephalic cavity is nothing else than the vertebral canal dilated and "ramené sur lui-meme;" if

the encephalon itself is the mere continuation of the spinal marrow, then we should á priori infer, that the mode of formation and developement of the two bony cases will be nearly the same, or at least that it will be analogous. Let us now examine whether these predictions are confirmed by anatomical enquiries. M. Serres has pursued this subject with great ability. After having, as it were, decomposed, or resolved a vertebra into its fundamental and constituent portions, he takes each of these portions and compares them successively with the corresponding elementary bones, which enter into the formation of the cranium.

In this manner he has shown the perfect conformity in structure of the occipital bone and of an individual vertebra; and by following this analytic process, he has pointed out a similar, but certainly a much less obvious conformity, which may be traced between the anterior and the posterior divisions of the sphenoid bone, of the ethmoid bone, and even of the bones of the face, and the primary constituent portions of a vertebra. This conformity or analogy becomes less and less conspicuous, both with the cranial and with the facial bones, the farther they are distant from the cervical extremity of the spine. M. Serres admits six cranial, and two facial vertebræ. Other anatomists have differed as to the exact number of these; but the opinions of all are fundamentally the same—namely, that an unequivocal resemblance may be traced between the formation and developement of the vertebræ, and of some of the bones of the head. All the lateral portions or segments of the cranial vertebræ are greatly amplified and expanded for the purpose of enveloping the brain and the organs of sense, while the bodies or central portions (for example, the basilar part of the occipital, the body of the sphenoid, the perpendicular plate of the ethmoid and the vomer) are proportionally diminished or rudimentary. Now these bodies or central portions, when examined in the young fœtis, are, all of them, found to be double or mesially divided, just as we have already shown to be the case with the bodies of the vertebræ themselves.

The posterior part of the occipital, the two parietal, and the frontal bones, may in truth be viewed as analogous to and corresponding with the spinous processes of the vertebræ.

This analogy in the formation of the bones of the head and of the vertebræ being once established, we are provided with a key to the explanation of many of the irregularities which are occasionally met with in these bones. For example, the base of the occipital bone, and the body of the sphenoid, remain sometimes quite disunited, and a portion of the encephalon protrudes, or forms a hernia into the back of the pharynx.

If the body of the ethmoid is imperfect from an arrested developement, a cerebral hernia into the nassal fossæ takes place. This imperfect state is much more frequently observed in the occipital, parietal, and frontal bones; and hence congenital herniæ of the brain are usually seen at some part of the convex vault of the cranium.

Those who wish to know further particulars on this branch of congenital pathology, will do well to consult the writings of the St. Hilaires, father and son.

The primary duality of the spine, of the cranium, and of the face, explains the etiology of a multitude of congenital diseases. In truth, all the organs or parts of the body, which in the adult subject are found to be single, and which are situated in the mesial line, were originally double, or cleft in two in the middle, and became united, or, as it were, soldered together, at some definite period of intra-uterine life. If this law holds good in organogeny, it must be equally so in pathology, and it is manifest that the causes which, in the cases alluded to above, operate on the spine and on the cranium, may act in the same manner and degree on the chest, abdomen, and on the organs of generation.

If we examine the sternum at different stages of fœtal life, we find a beautiful illustration of this law of mesial duality. In the very young fœtus the sternum is quite cartilaginous, and then it is laterally double, or cleft along its mesial line. Gradually we observe a double row of osseous points or nuclei, which in course of time coalesce, and thus the mesial line of separation is obliterated.

Sometimes we find that there is a large cleft or aperture in the centre of the ossified sternum. This imperfection is attributable to the progressive developement of the bone having been partially, or only at one point arrested. When this cleft is considerable, the heart may be protruded through it, and thus the disease, which has been designated ectopia cordis, is induced.

In pathology, as in other sciences, well established facts always tend to explain and illustrate each other. A fact which, considered by itself, may appear to be very curious and strange, becomes, if associated and viewed along with other analogous facts, simple and of easy explanation. This is the case with the congenital disease or imperfection, the fissure of the palate—a disease for the remedying of which, the operation of staphyloraphy has been contrived.

Now what is the true nature or cause of this fissure? It is in truth the result of a progressive and normal developement of the bone having been stopped or arrested at some period of fœtal life. The same holds true of hare-lip, of fissure of the alveolar process of the maxillary bones, of spina bifida, and numerous other congenital malformations. The organic lesion, in all these instances, proceeds from one and the same cause—arrested developement.

In one case of fissure of the sternum, which fell under M. Serres' notice, there was also a mesial fissure or division of the diaphragm; the aorta and œsophagus were displaced by a hernia of the intestines which had taken place through the unnatural opening. Olasner has recorded a case, somewhat similar to this one, in which the child lived to nine years of age.

In the early stages of embryotic existence, the abdomen, throughout its whole length, is quite open, and the greater part of the bowels are lodged within the sheath of the umbilical cord. It not unfrequently happens that this open state of the abdomen does not close entirely by the period of birth; and hence the origin of most cases of congenital hernia. When the aperture is large and the protrusion is considerable, the lesion is rarely curable.

Such cases are very common, and numerous examples of malformations of the abdominal parietes have been recorded by all the systematic writers on morbid anatomy. The rationale of these irregularities of formation is the same as we have already alluded to in reference to the malformations of the osseous system. The lateral halves of the abdominal parietes are at first quite apart and separated from each other; and if, therefore, the progressive and ulterior developement is arrested, the child at birth will be found to exhibit an imperfectly closed abdomen. The two halves of the central or mesial organs of the body gradually approach each other, until they coalesce, and form one continuous and uninterrupted structure. Such are a few illustrative examples of that law of symmetry, which Meckle has denominated the "lex Serriana" (in compliment, we presume, to M. Serres,) and which so satisfactorily explains so many of the congenital deviations of structure. We now proceed to investigate another topic of organogeny, which has hitherto perplexed most philosophic anatomists.

On looking at the osseous and the other organic systems of the body, we find that many of them are hollowed out into cavities, perforated with apertures for blood-vessels and nerves, and traversed with canals, which either receive and convey the fluids necessary to life, or transmit these into the surrounding peripheral parts.

Now what is the rational explanation of these formations? Let us take, for example, the vertebral column, and examine the various apertures which it exhibits for the passage of numerous blood-vessels and nerves. On the side of each vertebra, there is a semi-elliptic hollow or excavation, which, being applied to a similar hollow on the body of the next vertebra, forms an aperture for the passage of a spinal nerve and some blood-vessels. The formation of these vertebral apertures is affected in the same manner as that of all other apertures or perforations of the osseous system—namely, by the re-union of different portions of the bone during its process of developement. For example, the foramen magnum of the occipital bone is formed by the conjunction of the four pieces, of which the bone originally consisted; the superior and inferior maxillary holes of the sphenoid bone result from the coalescence of the two halves of the alæ, and the same is true of the foramina rotunda and ovalia, and also of the meatus auditorii. Such is the mode of formation of all the apertures and passages which we observe in a mature bone; the bone originally consisted of several pieces, and as these pieces approached each other in the process of developement, a cleft or vacant space was left.

The same law holds good in reference to the perforations which we find in many of the soft structures and organs of the body. The septum of the auricles is, every one knows, cleft in the fœtus. Now this septum is, like the diaphragm,

formed of two pieces developed apart from each other; the one portion descending from the upper wall of the auricle (which is originally a single sac,) and the other portion ascending from its lower wall; and, as these approach each other, a cleft or unclosed space, the foramen ovale, is left. This cleft or aperture is always proportionately larger in the young than in the advanced fœtus.

In the same manner we may explain the formation of the various apertures through the diaphragm for the passage of the vena cava, the aorta, and the œsophagus; and not only of these apertures, but also of the pupils of the eyes, and of the openings of the mouth, the anus, the vagina, &c. The margins of all these openings were at one period of embryotic life imperfect; and all these openings, without exception, were formed by the "adossement" or meeting together of two elliptic or semicircular muscles. Some of these parts or structures, which are normally open and perforated in the mature fœtus, were primarily formed of serous-looking membranes, which were quite closed through all their extent. If the portion which corresponds to the opening remains longer than the period assigned to it in the series of developements, the child is born with one or more of its passages imperforate. This malformation is not unfrequent at the anus and vagina.

What has been stated in reference to the formation of the apertures in the bones and other parts of the body, may be applied to the explanation of the developement of the various canals, as of the nasal, intestinal, urinary, &c.; and, in short, what is a canal, but merely a lengthened or prolonged aperture? The walls of the canal were at some period of fœtal life composed of two or more detached lateral portions, and these portions, gradually approaching each other, at length coalesced, so as to form a continuous and uninterrupted passage.

Thus the nasal canal has been formed by the meeting together and union of the superior maxillary, the vomer, and the turbinated bones. The central canal of the spinal marrow has arisen by the union, anteriorly and posteriorly, of the two lateral halves of the medulla, leaving a space between; and the intestinal canal is developed in a similar manner—by the concentric coalescence of separate lateral portions—as has been admirably described by Wolf.

The mode of formation of the urethra, also, is quite the same; and for several reasons I select this canal, to offer a few general observations on this curious subject of organogeny.

When the pelvis is still unclosed in the young embryo, the canal of the urethra is cleft throughout its whole length—the two lateral halves of the penis and of the clitoris are separated from each other, and the perineum is open along its mesial line, where the raphé is afterwards situated. These two halves of the genito-urinary organs gradually approach each other, and at length meet and coalesce about the time when the two ossa pubis become united. This coalescence takes place on the upper surface first, and afterwards on the lower. Anterior to this event, there is in fact no distinction of sexes, and all young embryos are alike.

When the union has taken place, the two branches of the clitoris and of the penis present so obvious a projection, that at this period—from the fortieth to the fiftieth day—all fœtuses appear to be males. But afterwards, as the fissure of the perineum contracts, and as the two halves of the urethra are approaching each other, a person might suppose that every fœtus was female. This second deception is manifested about the end of the second month of embryotic life.

We thus discover how it is that, at first, there is no recognisable distinction of sex; and that subsequently all fœtuses appear to be male, and then to be female, before the complete developement of the organs takes place. If, therefore, the developement of these parts is arrested at one or other of these periods, it is not surprising that a female child may at birth exhibit the appearance of the male generative organs, and, on the other, that a male child may exhibit the appearance of the female organs. This is the key to the explanation of the different sorts of hermaphrodism. The malformation of hypospadias (in which the canal of the urethra is more or less imperfectly closed) is readily explicable by what has been already stated. All male fœtuses, at one period of intra-uterine life, are effected with hypospadias, and, therefore, if the state of parts which constitutes this imperfection remains at birth, the child is born with an urethra more or less open along its lower surface. The open state or fissure of the canal may occur

either near to the glans, or in the middle, or quite at the root of the passage in the perineum; and hence the varieties of the malformation which have been described by authors.—*Med. Chirurg. Rev.* from *Gazette des Hôpitaux.*

2. *On the varieties of the obturator artery, and the relations of these to the femoral ring.* It is highly probable that there is greater risk of wounding the obturator artery during the operation for strangulated femoral hernia, than is usually supposed. The following remarks, therefore, by Dr. John Reid, on the varieties in the origin and course of this artery, are deserving of attention.

Mr. Guthrie states, in his essay on femoral and inguinal hernia, when speaking of the danger of wounding the obturator artery in operations for strangulated femoral hernia, "that he has been made aware of more than one accident of this nature having occurred in operations performed by some of the best anatomists and surgeons in London, and the patients subsequently bled at intervals, until they died from hæmorrhage." Robert* mentions, that the celebrated Mursinna, in operating for strangulated femoral hernia, in a case where the obturator artery had surrounded the neck of the sac, wounded the external coat of the artery, and that the patient died eight days after, from hæmorrhage arising from a rupture of the injured artery.

In 1831, I witnessed a somewhat similar case in the practice of Dupuytren at the Hotel Dieu. The patient was a female about 60 years of age, who was brought into the hospital with well marked symptoms of strangulated femoral hernia. All the urgent symptoms ceased after the operation, and she seemed to be going on well for a fortnight, when she was seized with severe diarrhœa, which soon carried her off. On dissection, a broad sheet of effused blood was observed through the *peritoneum*, evidently placed between that membrane and the *fascia transversalis* of Sir A. Cooper, extending from the lower part of the *pelvis*, up nearly to the *umbilicus*. This was found to have taken place from the obturator artery, which in this case had arisen from the external iliac by a trunk common to it with the epigastric, and had nearly surrounded the neck of the sac, and which, during the operation, had been completely cut across. Dupuytren remarked, that the blood which escaped externally during the operation, was greater than usual, but this soon ceased. Had this woman not died from the effects of the diarrhœa, it would never have been discovered that the obturator artery had been wounded. The extent of the hæmorrhage was in all probability diminished, by the artery having been completely cut across.

The most common origin of the obturator artery is from the internal iliac or some of its branches; but in a great number of cases it is found to arise either directly, or much more commonly indirectly from the external iliac, by a trunk common to it with the epigastric. When it arises from the internal iliac, it is evident that it can in no way be implicated in the operation for femoral hernia, in whatever manner it may be performed. Even when it arises from the external iliac, it is but very rarely endangered in the ordinary methods of performing this operation, as it generally proceeds downwards and inwards, first passing along the outer or iliac side of the femoral ring; and then along part of its posterior margin, to reach the upper portion of the obturator *foramen*. In the rarer cases, which seem to be principally those in which the common trunk of the obturator and epigastric is longer than usual, the obturator takes a more circuitous course, passing along the upper margin of the femoral ring, and then along its inner or pubic margin. It must be evident that when a femoral hernia descends, the relative position of the artery to the neck of the sac, in these two cases, is very different, and, in a practical point of view, involves very important considerations.

We have stated that the most common, or what is considered the normal origin of this artery, is from the internal iliac, or one of its branches. The origin next in frequency is by a common trunk with the epigastric from the external iliac. More rarely it springs directly from the external iliac, and still more rarely from the femoral. Though the artery may thus arise from points placed at a considerable distance from each other, it invariably makes its way out of the *pelvis* by the same opening, viz. the upper part of the *obturator foramen*. When it is a branch

* Journal des Progres des Sciences Medicales, Tome viii. p. 193.

of the femoral it mounts upwards along that artery, passes below Poupart's ligament, and places itself in the same position as if it had arisen within the *abdomen.*

Cloquet* examined 250 subjects; 125 females, and 125 males, for the purpose of ascertaining the relative frequency of the origin of the obturator, from the hypogastric, external iliac, and epigastric. In these the obturator arose from the hypogastric on both sides in 160; from the epigrastic on both sides in 56; from the epigastric on one side, and the hypogastric on the other, in 28; from the external iliac in 6. Including both sides of the body, thus increasing the number of arteries examined to 500, and taking all the obturator arteries which arose from the hypogastric arteries, and all those which arose from epigastric arteries, or directly from the external iliac, he found that the obturator arose from the hypogastric in 318; from the epigastric or external iliac in 152. According to these results, the frequency of the origin of the obturator artery from the hypogastric are to those from the epigastric and external iliac as 3 to 1. The obturator was found to arise rather more frequently from the hypogastric in males than in females. Monro believes the relative proportion between the origin of the obturatory artery from the internal iliac and its branches, and from the epigastric and external iliac, to be as 20 to 1. Velpeau† states that his observations, drawn from the examination of nearly a thousand cases, led him to coincide in Monro's opinion. Hesselbach‡ thinks that the origin of the obturator from the external iliac and epigastric is not very common, and strangely asserts, that it rarely occurs, except in females. Manec states the proportion to be 1 in 6; Scarpa and Lawrence as 1 in 15. According to other researches§ the obturator was found to arise in common with the epigastric in 12 out of 63 subjects affected with crural hernia, and in all passed behind the neck of the sac. Meckel‖ is of opinion that the obturator arises nearly as frequently from the epigastric and external iliac, as from the internal iliac and its branches. My own dissections have furnished me with results approaching very nearly to those of Cloquet. Of course the only conclusion that can be drawn from these discordant statements is, that the obturator arises very frequently from the external iliac, in common with the epigastric. The epigastric has been observed by Monro, Hesselbach, Lauth, and Velpeau, to arise from the obturator or some of the branches of the internal iliac, so that it might in some cases, such as in that detailed by Hesselbach, be carried to the inner side of the sac in femoral hernia. Some, as Cruveilhier,¶ maintain, that these descriptions of the origin of the epigastric from the obturator ought to be considered as nothing more than the branch which generally passes between those arteries increased beyond the usual size: but Velpeau** seems quite convinced of the accuracy of one at least of these descriptions from actual observation.

Dr. Barclay was the first to dissect and prepare a case of femoral hernia, in which the obturator artery passed along the pubic side of the neck of the sac. This preparation, unique at the time, was delineated in Sir A. Cooper's work on femoral hernia, and is now in the Barclayian part of the Museum of the Royal College of Surgeons of Edinburgh. Mr. Wardrop shortly after this described a similar case, also referred to by Sir A. Cooper in the same work. Dr. Monro has seen the artery passing on the pubic side of the neck of the sac three times. Dr. Knox is in possession of a very beautiful preparation of this kind, in which the artery was firmly tied to the outer edge of Gimbernat's ligament.†† Similar cases in which the obturator artery took that course have been seen by Cloquet and Dr. Thomson. Brechet‡‡ also refers to one. I have no doubt, indeed I know, that similar cases have been seen by others; but the extreme rarity of the occurrence having passed over, these are not now made public.

Allen Burns relates a case in which there were two femoral hernia on the same side; one protruding into the femoral ring, the other into the sheath of the vein.

* Recherches Anatomiques sur les Hernies de l'Abdomen, p. 72.
† Traite Complet d'Anatomie Chirurgicale, 2d Edit.
‡ Origine, &c. des Arter. Epig. et Obturat.
§ La Medecine Operatoire par Sabatier, p. 609. Tome iii. E. 1830.
‖ Manuel d'Anatomie Descriptive, Generale, &c. Tome ii.
¶ Anatomie Descriptive, Tome iii.
** Oper. cit.
†† This preparation is delineated and described in a very excellent probationary essay on the Obturator Artery, by Dr. H. H. Maclarlane.
‡‡ These sur la Hernie Femorale, p. 133.

If the obturator artery had arisen in this case from the epigastric, it would in all probability have surrounded the greater part of the neck of the sac of the smaller hernia, protruding into the sheath of the vein.* Mr. Lawrence infers that the obturator artery may surround the neck of the sac, so as to become endangered in 1 of 80 cases of femoral hernia. As this calculation, however, must be formed from imperfect data, we can only regard it as an approximation to the truth.

When the obturator arises in common with the epigastric, we generally observe a small branch running in the more usual course of the obturator, and *vice versa*. Meckel supposes that in the fœtus, the obturator is always formed by two branches, one from the internal iliac, and one from the epigastric or external iliac; that these are at first of equal calibre, but, as the growth proceeds, one of them becomes arrested in its developement, and never proceeds beyond the fœtal state, while the other enlarges in proportion to the increasing size of the parts which it supplies.

The epigastric generally sends two small branches over the posterior surface of Gimbernat's ligament, one of these ramifying upon the posterior surface of the pubis, the other proceeding downwards to the upper part of the obturator *foramen*, to connect itself with the obturator artery. This last branch, if we admit Meckel's views to be correct, must be regarded as forming part of the obturator artery in the fœtus, and which often becomes enlarged, while the other branch remains of the fœtal size; so that what is generally considered as the abnormal origin of the obturator artery is only the enlargement of a normal branch. In a preparation made by Mr. Liston, and described and figured by Dr. Monro, this branch passing between the epigastric and obturator is of unusual size. This resembles cases alluded to by Cruveilheir, where the branches from the epigastric and internal iliac forming the obturator were of equal calibre.

The obturator vein often passes up to join itself to the epigastric vein. In this course it may surround the neck of the sac. Allen Burns has seen an instance of this kind. Michelet found the internal circumflex artery in one case arising in common with the epigastric, and he supposed that if a femoral hernia had descended, it might have been pushed to the pubic side of the neck of the sac. I had an opportunity of dissecting a similar variety two winters ago; but in that case the artery would, in all probability, have lain on the iliac side of the neck of the sac. In one subject last winter I found the converse of this variety; the epigastric arose from the internal circumflex an inch and a quarter below Poupart's ligament. The artery in this case would also in all probability have been placed on the outer side of the sac, had a femoral hernia descended.

Besides the constant danger of cutting directly outwards from the position of the common femoral vein, of carrying the knife upwards and outwards to any great extent from the proximity of the origin of the epigastric artery, of cutting directly upwards, for much more than two lines in the male from the presence of the spermatic cord, we find that there are other blood-vessels, deviating from their usual course, which may occasionally present themselves to the cutting edge of the knife, in whatever manner the operation may be performed. Though no surgeon in this country would, in consequence of this, be inclined to adopt the method of dilating the stricture, yet it must deeply impress upon his mind the necessity of not extending his incisions for enlarging the stricture, beyond what is absolutely necessary for returning the contents of the hernia without violence.†

If the obturator should happen to be divided during the operation, are we to stand idly by, and not attempt to secure the cut extremities of the artery? Mr.

* The protrusion of a hernia into the proper sheath of the vessels, by which I mean the tendinous septa passing backwards from the posterior surface of Poupart's ligament, and upper part of the iliac portion of the *fascia lata* between the artery and vein, and also on the pubic side of the vein, to the pubic portion of the *fascia lata*, must be an exceedingly rare occurrence, since this is not only prevented by the close manner in which the sheath envelopes the vessels, but more particularly by the reflection of the *fascia transversalis* from Poupart's ligament upon the anterior surface of the vessels. If, however, we with some anatomists describe the *fascia cribriformis* as the anterior part of the sheath of the vessels, and the pubic portion of the *fascia lata* which lies behind the vessels as the posterior part of their sheath, then every femoral hernia lies in the sheath of the vessels.

† In some of the cases in which the obturator surrounds the neck of the sac, the incisions for enlarging the stricture may probably be carried for a line or two without endangering the artery.

Guthrie has very properly strongly protested against such inactivity, and lays down the following directions for securing the artery. "In the male a transverse incision should be made in the line of Poupart's ligament, the tendon of the external oblique muscle cut through, and the spermatic cord exposed; this is to be drawn upwards, and kept in that situation by a bent probe. Poupart's ligament is then to be cut through until the first incision for dividing the stricture is met by that just made. The blood will now easily lead to the artery, which must be secured by a ligature, and to render this easy of execution, sufficient space and a blunt knife only can be wanted in addition to the forceps and ligature. In the female the operation is very simple, as the round ligament requires little attention being paid to it."—*Edinburgh Med. and Surg. Journ.* July, 1836.

PHYSIOLOGY.

3. *Temporary loss of the memory of words, after an injury of the head.*—An interesting example of the loss of language from injury to the brain is related by Dr. Inglis in the *Edinburgh Phrenological Journal.* The subject of this case was a woman æt. 33, who was shot by a sheriff's officer on the 24th December, 1835.—The ball entered the cranium at the external orbital angle of the frontal bone. That night she had an epileptic fit, and she remained insensible till the 26th, on which day sensibility returned.

On the 29th she was seen by Dr. Inglis and Mr. M'Keur, when she answered questions correctly, and her memory was quite unimpaired. She complained o some pain of the back part of her head, but especially of a dull, heavy, constant pain in the region of the wound. This was increased by some degree of vertigo, which followed from assuming the erect posture. A probe was introduced into the wound, and, after penetrating about an inch and a quarter, was stopped by a splinter of bone. On passing the probe a little to the right, or towards the median line, the bullet was distinctly felt, having penetrated both tables of the bone, imbedded deep in the rugged edge of the internal one. A sufficient incision being made, Dr. Inglis succeeded, by the application of some force, in extracting the bullet. It was flattened on one side and rugged, having the impression of the bone into which it had been impelled. Several splinters were removed, and also the one mentioned above of greater size, which was pressing upon a portion of the anterior lobe of the brain. The orbitar plate of the frontal bone was also considerably injured. The wound was dressed with adhesive straps, and lint, wetted with cold water, kept applied. The pulse was 72. A purgative was prescribed.

On the 30th there was violent pain in the back of the head—pulse 80—bowels open. On the 31st, had slept little, and still complained of the pain in back part of the head. Appears drowsy, and answers questions incoherently. The wound discharges healthy pus. No stool since yesterday. Tongue white, but moist. On the 1st of January, Dr. I. found that she had been up and eating animal food—pulse 100—pyrexia—some degree of stupor, and talked incoherently when roused. On the 2nd she was insensible unless roused, when she knew every body, and understood what was said. She seemed to have lost the memory of words, and could not express her wants. Pulse 68—pupils natural.

She continued in nearly the same state for the next two days, when, after excitement she became more comatose. Pulse 60. On the 6th, much discharge took place from the wound, and a small piece of bone came away. After this, she seems to have improved, for on the 9th, the power of speech was returning, and on the 11th she could talk slowly and without hesitation. The wound was then greatly cicatrized, and the pulse had fallen to 48.

"All the symptoms have gone on improving down to the present date (Jan. 18.) Still, however, she forgets some words; and, when talking about any thing, she repeats the same words several times before she can recollect others to express her ideas in succession; and often stops short in the middle of a sentence, telling the nurse to finish it for her."

In a posteript, we are informed that the memory of words is quite restored.

It will be observed that, in this case, the loss of the recollection of words did not

follow hard upon the injury, but occurred in connexion with fever, and at a period which renders it probable that inflammatory action occasioned it. In this there is nothing to excite surprise; and we cannot wonder that this, as well as many other disturbances of the cerebral functions, should occur when its structure is interfered with. Such cases are sad stumbling-blocks to those who, not content with doubting the truths of the details of phrenology, dispute its general principles, and, surrounding themselves with a metaphysical fog of generalities, are unable to discern, or unwilling to admit, the most obvious facts.—*Med. Chirurg. Rev.* Oct. 1836.

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4. *Abstract of a paper on the Gyration of the Heart and the mechanism of the circulation.* Read before the British association at Bristol, 24th August 1836, by Mr. Greeves, of Nottingham.

1. The diastole of the ventricles is effected by ordinary muscular contraction. Whenever the fibres of an organ are arranged spirally around it, so that, in contracting, each tends to a parallel with a plane drawn longitudinally through the axis of the organ, then the *contraction* of those fibres may *enlarge* the organ, if they have a fulcrum to act upon.

2. When a set of muscular fibres is placed at an angle with another set, simultaneously contracting, one set may become a fulcrum for the motions of the other, as in the tongue and the elephant's trunk.

3. The ventricles are each formed of two series of spiral fibres, winding round in opposite directions, of two longitudinal, and one diagonal.

4. The contraction of that series of spiral fibres whose turns are contrary to "the thread" of a screw, effects, with the internal, longitudinal fibres, the systole, or "involution," by twisting up the ventricle on itself, and thus making it gyrate as the left hand pronates.

5. The other spiral set, with the diagonal as a fulcrum, and the external longitudinal, produces, in contracting, the "evolution," or diastole, and gyrates the ventricles in the direction in which the left hand supinates.

6. The gyrations commence at the apex, and pass to the base, and then the internal longitudinal fibres, which sustain the auricular-ventricular valves (by the chordæ tend.) during the systolic pressure, contract during systole *successively.* Hence no sound occurs on the closure of the mitral or tricuspid valves, because the entire valve not being put into a state of tension at the same moment, no vibration takes place. The gyration of the ventricles increases towards the apex.

7. The ventricles do not empty themselves during systole, the reason of the clearness of the second sound.

8. The curving of the two great arteries around each other is so arranged, that whilst the ventricles during systole are gyrated by their intrinsic muscularity in one direction, the untwisting of the double arterial curves gyrates the organ *en masse* in the opposite direction. This mechanism causes,

9. A diminution of friction;

10. A steadiness and celerity of motion, upon the principle of the "tilt hammer;"

11. A progression, or forward movement;

12. An isochronous effect, producing the regularity of the pulse, on the same principle as the pendulum or balance spring of a watch.

13. The pericardium operates as a peripheral axis for the motions of the heart: hence, to examine its movements after removing the pericardium, is like taking off one of the plates in which the wheels of a watch work, in order to observe their motions.

14. The true use of the auricle is to obtain the equilibrium of the venous system, preventing collapse, friction, and pulsation; just as elasticity and contractility do in the arterial system.

15. The true cause of the first sound is the sudden tension of the ventricle during systole, of course augmented by the vibration of the contained fluid, and also by the sudden change of gyration from one direction to another, on the same principle as the cracking of a whip.

16. The "impulse" follows the first sound the moment the whole ventricle is in a state of systole. Its causes are, first, the progression of the heart (No. 11;) second, the pressure of the atmosphere impelling the diminished ventricle against the thorax; third, the contraction of the left ventricle, *having first gyrated round into a*

position to enable it so to do, carrying the ventricle against the thoracic parietes with a force equal to the difference between the power of the right and left ventricles.

17. These principles are applicable to all forms of heart, and to the mechanism of the capillaries, as well as every physical structure and function. Mr. Greeves has confirmed them by direct experiment upon living animals, and illustrated them before the Association by various mechanical experiments, cases of pathology, and preparations of human and comparative anatomy.—*Lancet for September 10th*, 1836.

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5. *On the Power by which the Head of the Thigh Bone is Retained in its Socket.* Dr. Edward Weber read a paper on this subject at the meeting of German naturalists at Bonn, Sept. 25th, 1835; and, on the following day, the experiments referred to in it were repeated in the presence, among others, of Leuckart, Mayer, Schulze, Munke, and the two Webers; all of whom were convinced of the retention of the femur in its socket by the pressure of the atmosphere. The paper alluded to, has been published in *Müller's Archiv. für Anat.* Heft. I. 1836. We copy the following translation of the greater part of it from the third number of our esteemed transatlantic cotemporary, the British and Foreign Quarterly Review.

It has been generally believed that it is through the power of the muscles or ligaments that the head of the thigh-bone is retained in its socket; and this, probably, because they are the first to strike our senses. A closer investigation, however, has proved that it is neither the muscles nor ligaments that effect this, but the pressure of the atmosphere. The head of the thigh-bone, enclosed in its air-tight cavity, remains in its place, on the same principle that the piston remains fixed in a cylinder, the upper extremity of which is closed with the finger; being forced by the air against the upper walls of its cavity, just as the mercury in the barometer is forced upwards by the same agent. The following experiments prove this fact:

1st. The trunk of the body was laid on a table in such a position that the leg and thigh hung down unobstructed. If the bone were supported in its place by the muscles and ligaments, it must clearly fall when the muscles and ligaments are divided. I divided the muscles and ligaments, and the limb did *not* fall: on the contrary, the bones constituting the joint remained in close contact, as before.

2nd. If we admit that the limb is maintained in its position by atmospheric pressure, it is clear that it should fall down when air is admitted into the joint. I bored a hole through the wall of the bony cavity of the joint, and on the admission of the air the limb fell; and the displacement followed on boring the hole, even when the muscles and ligaments were not divided.

3d. If we assume that the atmospheric pressure is *alone* sufficient to maintain the limb in its place, the bone which had fallen down ought to be retained there when replaced and the air excluded. I replaced the bone which had been severed from the body, and excluded the air from the joint by closing the artificial opening with the finger: the limb remained supported in its place; and immediately fell down once more on the finger being removed.

I will only here refer to one instance of the practical application of this view of the mechanism of the thigh-joint,—the case known by the name of *spontaneous luxation of the thigh.* It is well known that, in this case, the bone is displaced without any obvious external cause, the limb being at first considerably lengthened, with marked lameness.

Since it has been shown that the head of the bone is not retained in its place by the power of the ligaments, it is not therefore necessary, for the explanation of the case, to admit that the ligaments must, previously to its occurrence, be lengthened, or (to speak generally) *altered*, in any way. Our experiments have shown that the head of the bone fell immediately from its socket into the interior portion of the capsular ligament (in die höhle der kapsel herabsank,) upon the admission of air into the cavity of the joint. But, to produce this result, it is not necessary that air should be introduced from without: the same effect will follow the secretion of a fluid or the growth of a solid body in the cavity of the joint itself. In proportion as such a substance, whether fluid or solid, accumulates, the head of

the bone will necessarily fall down through its own weight, without the application of any force, and without the least resistance being opposed by the ligaments of the joint.

6. *Anomalous Menstruation.*—M. Bourgeois has met with a curious example of this. A young lady of 15 or 16 years of age, commenced some time since to menstruate from the extremities of each of her ten fingers. At the second menstrual epoch, the hæmorrhage was renewed from the same place, and at the period when M. B. communicated the fact to the Medical Society of Paris, the menses had not appeared in the natural manner.—*Rev. Med.* Aug. 1836.

MEDICINE.

PATHOLOGICAL AND THERAPEUTICAL.

7. *Observations on the sudden death of Children from enlargement of the Thymus Gland.* By W. F. Montgomery, M. D.—The fact that children, apparently in good health, sometimes die suddenly—that is, in the space of a minute or so—is too well known to render any thing more than the mere allusion to it necessary; but the cause, or at least one of the occasional causes, is not so well understood. I have now seen several instances of a very singular mode of death in children, and there are some gentlemen in this city who have witnessed the cases with me, and seen the results. I allude here to those cases in which young children are suddenly cut off by an undue enlargement of the thymus gland.

A minute account of the form, structure, and relations of the thymus gland, would be here misplaced, and does not appear necessary: but as there may be some to whom the matter may not be so familiar, I trust I shall be excused for touching briefly on this point. The thymus gland is a peculiar body, discoverable in the fœtus about the third month of intra-uterine life, and in the fourth month presenting itself as a distinct organ occupying the upper and anterior part of the thorax. About the time of birth it possesses considerable size, and is lodged behind the superior part of the sternum, lying over the lungs and heart. It covers a considerable portion of the lungs and pericardium, passes through the superior aperture of the thorax, and extends upwards as far as the thyroid gland; part of it is therefore confined by a bony case, and part of it free; being covered in the neck merely by the integuments and a thin layer of muscular substance. Its tissue is soft, loose, and pulpy, and contains a vast number of small cells opening into a large reservoir. This reservoir is as large, in proportion to the gland, as one of the ventricles is to the heart. and is very well represented in one of the plates to Sir A. Cooper's work.* The cells of the organ are filled with whitish cream-coloured secretion, which has some of the properties of chyle. The parenchyma of the gland is very soft, spongy, and highly distensible. Its supply of blood is also very remarkable. This is furnished by four long arteries, of which the two superior are generally branches of the thyroid arteries; the two inferior ones are derived from the internal mammary. Its veins, (and this is a point deserving of attention) are also divided into two sets, the upper opening into the thyroid veins, the lower emptying themselves into the left vena innominata.

The thymus gland is then a soft, spongy, and highly distensible organ, forming in the newly born infant, a mass of considerable size, situated in the upper part of the thorax, and extending up the neck as far as the thyroid gland, partly free and partly confined, lying over the pericardium, lungs, and the roots of the great vessels, abundantly supplied with blood, and capable from its position of exercising, under certain circumstances, a considerable degree of pressure on the trachea and left vena innominata. Its ordinary weight at birth is about half an ounce, or 240 grains.

If we examine the superior aperture of the thorax, and observe that in this situation we have the trachea, œsophagus, the great arteries of the head and upper extremities, the venæ innominatæ, and the phrenic and pneumogastric, recurrent, and sympathetic nerves; if we reflect also that in this situation we have an organ of considerable dimensions, and capable of great distension, we can easily understand

* On the Anatomy of the Thymus Gland, Plate iv. fig. 6.

that any deviation in point of size will produce important results with respect to the condition of the surrounding organs. In the natural condition, this gland does not produce any inconvenience; but when it becomes enlarged from temporary and accidental causes, or more permanently from disease, so as to exercise a sudden or inconvenient pressure on the surrounding organs, we should expect corresponding changes in the condition of these parts. Hence it is, that enlargement of the thymus gland is frequently connected with sudden and remarkable alterations in the state of the great vessels, heart, lungs, and brain.

Having mentioned these facts, I shall proceed to detail a few cases of this remarkable affection. The form in which I have observed it myself, and in which it has occurred to others, is this:—Children in apparently good health, and who have even attracted attention by their florid complexion and high condition, are observed, when thwarted, frightened, awaking from sleep, or swallowing, or when under the influence of any mental emotion, to become all at once violently agitated; the hands are thrown up, the features become fixed, the eyes staring, and the breathing suspended; in a short time the fit ceases, and respiration and vital power are restored, or the infant drops its head on the nurse's shoulder, and dies. The first thing which occurs when the paroxysm ceases, is a slight fine whistling inspiration, as if the respiratory act was for the first time established.

The first time my attention was directed to this subject was on receiving about seven years ago, from Dr. Neason Adams, of this city, an enlarged thymus, of which he has given me the following account:—The child from whom it was removed began to be affected, when eight months old, with what was considered spasm of the glottis, and, under the Doctor's judicious treatment, got so much better that it was not thought necessary to continue the administration of the remedies employed; the attacks, however, returned, and a repetition of the former medicines was about to be sent for; but one morning, when at the breast, and apparently as well as possible, its head dropped back on the mother's arm: she immediately ran towards the window, but, before she could get there, every sign of life had ceased, without fit or struggle of any kind.

Another case communicated to me by the same gentleman is most painfully interesting. The child was brought to the Doctor, that he might see the great amendment that had taken place in its state of health, and to have the gums examined: which latter examination he declined, as the attempt had, on two former occasions, brought on a paroxysm. The mother not being satisfied, and anxious to have the gums examined, undertook to separate the jaws of the child; doing so brought on the attack, and in an instant the child was a corpse in her arms.

The next case was one which occurred in my own practice. It was the child of a lady who had been herself very delicate in childhood, and was of a rather feeble habit in after life. She had also been subject to some affection in the throat, the nature of which I could not ascertain. The child, which was a boy, was born in August; about three weeks after his birth he appeared agitated and affected in his breathing when startled or awaking from sleep. This was at first regarded as accidental, but as the fits continued to recur at intervals, the parents took the alarm, and sent for me to see him. I saw that there was something wrong, and endeavoured to find out the cause, but could not discover any thing in the chest or elsewhere, to account for the occasional affection of the respiration, and the child was in other respects handsome, healthy, and thriving. The first severe attack it had was on Dec. 10, at night; the child awoke suddenly, started, screamed, and threw up its arms. When lifted up, it started with an expression of wildness and distress, its features were fixed, and the respiration entirely suspended. On throwing up the window sash, and letting in a stream of fresh air, it began to breathe, but with considerable difficulty, and the agitation continued for several hours. On seeing the child, I thought that the sudden suspension of respiration might be connected with an affection of the brain, and under this impression prescribed some calomel powders, and a blister to the nape of the neck, which produced relief. The next attack which it had was Dec. 13, in giving it some medicine. The nurse threw it on its back, held its hands, and tossed the medicine down its throat. A fit similar to the former, and still more alarming, was the almost immediate consequence. After this it was put under a course of medicine by Dr. Harty and myself, and appeared to be going on very well. The last attack was on the 27th of January, at which time the child was five months

old, and apparently in the most perfect health. The child's grandfather was about to proceed to a levee at the Castle; the infant appeared to be highly delighted with his dress, which was very splendid, and was brought by the nurse to see him get into his carriage. It was brought back to the drawing-room, delighted and jumping in the nurse's arms; when suddenly it stared wildly, made a violent convulsive effort, dropt its head on the nurse's bosom, and expired. Medical assistance was instantly called in, but the vital spark was entirely extinct, and every attempt at resuscitation was fruitless. On dissection, at which Dr. Harty, and Dr. Marsh, were present, the thymus gland was found greatly enlarged, and, from the quantity of blood which it contained, of a deep crimson colour. The ordinary size of the thymus gland in infants is known to most practitioners, and will be found very well represented in Sir A. Cooper's plates. In the natural state it is about two inches in length, an inch and a half in breadth, and a quarter of an inch in thickness. In this child it was three inches and a quarter long, nearly three inches in breadth, and fully three-fourths of an inch in thickness. I did not weigh it, but I am sure it weighed at least two ounces; and when we recollect that the ordinary weight is about half an ounce, the enlargement in this instance will appear very considerable.

The next instance in which I had an opportunity of observing this affection, was in the child of a physician in this city. This case was one of extreme interest and concern to the family, for the child's eldest brother had died of an attack of the same disease; and is still more interesting in a practical point of view, as the detection of the disease led to the adoption of a successful plan of treatment. The following circumstances are given from a letter which I received from the child's father:—

"The eldest of my children (William,) who suffered from the affection your note refers to, was a remarkably fine, healthy, placid looking child, up to five months old. About that age (in December, 1830) he was seized, while asleep, with what appeared to be convulsions. His face was swollen; his eyes fixed; his breath spasmodically retained; he gaped and struggled for some time, and when he at length recovered his breath he uttered several sharp cries, as if in much distress. The attacks soon became frequent, and generally occurred during sleep, when fretted, agitated, or frightened by any sudden noise or motion, or whenever his breath was from any cause obstructed, but sometimes also when smiling and playful. The fits used sometimes to last so long, that his face became nearly black from the obstruction of his breath; and one, which lasted only a little longer than the others, suddenly deprived him of life. He had been a moment before cheerful, and apparently free from all illness. He died at the age of eight months, having been ill three."

The second child was attacked for the first time in the eleventh month of his age (March, 1831,) having been previously remarkably healthy. In his case the upper part of his sternum projected in a remarkable manner, as if forced outwards by the pressure of the enlarged thymus gland, which could be felt. The paroxysms were well marked, but not so severe as they had been in his brother, nor occurring at such short intervals. The treatment adopted in this case was the following:—A few leeches were applied over the situation of the enlarged gland, in order to diminish its vascularity and hypertrophy, and afterwards a small blister, which was kept open by proper dressings. The ointment of hydriodate of potash was rubbed in around the part, and medicines were administered to regulate the state of the bowels: a good but not stimulating diet, country air, and sea-bathing, were advised. Under this plan of treatment the hypertrophy of the gland was soon reduced, and the paroxysms had completely ceased at the end of a month. He is now more than three years old, remarkably healthy and stout, and the projection of the sternum has entirely disappeared. I was happy to have the assistance of Dr. William Stokes in this case.

With respect to the conditions of other organs as connected with this affection, the following circumstances have been observed on dissection: A very curious state of the heart has been detected; this organ being found quite empty, without a particle of blood or coagulum, contracted on its dimensions, and as it were puckered on itself. In the head a quantity of serous fluid has been frequently discovered, and hence such cases have been pronounced cases of hydrocephalus, although none of the symptoms of the latter affection were observable during life.

Now if we bear in mind that the position of the gland is such that when enlarged it must greatly obstruct the return of blood from the head, and reflect on the effect which this must have on the capillary origins of the veins, we can easily understand why serous effusion should be as natural a consequence as ascites from enlargement of the liver, or anasarca of the extremities from a pressure of a gravid uterus, or an enlarged ovary. Enlargement of the mesenteric glands has been very frequently found in connexion with this disease.

But a question of more importance is, how does the enlargement of the gland produce the fatal result? I think the matter admits of a satisfactory explanation. Enlargement of the thymus gland may occur in three different ways. In the first place it may be the effect of simple hypertrophy, connected with general plethora, occasioned principally by over feeding. Sanguification goes on actively, and a large quantity of blood is sent to all the glandular organs, and among the rest to the thymus, by which its substance is hypertrophied, and its vessels distended with blood, so that its cells become loaded with the fluid peculiar to them; and in this way the volume of the gland may be considerably increased. In the second place the enlargement may be connected chiefly with the disproportion between the size of the gland and the capacity of the superior aperture of the thorax.* Lastly, the gland may be enlarged as the result of actual disease.† The same form of scrofula which is observed in other glandular organs, may also attack the thymus; and it is well known the disease in question is most apt to occur in children who have exhibited scrofulous affections of other parts.

We now come to examine another part of the subject, namely, the mode in which this enlargement may thus suddenly impede the functions of respiration, circulation, and nervous energy, and thereby destroy life, which appears to me to be thus: Supposing any cause to occur capable of producing agitation or strong mental excitement in the child, and that the gland has been previously enlarged, and capable of great distension, a number of circumstances will occur which combine in rendering that distension still greater, and increasing the size of the gland in such a manner as to affect materially the condition of the surrounding parts. Any cause producing agitation on the part of the child, excites the heart's action; the enlarged gland becomes distended and increased in size, presses on the vena innominata, and prevents the return of blood from the head. The same pressure prevents the venous blood of the thymus itself from getting into the innominata, and thus becomes a fresh source of distension. The combined result of this is great and dangerous pressure exercised on the great vessels, preventing the return of blood from the head, and thereby suddenly producing cerebral congestion; on the trachea, by which respiration is impeded; and on the important nerves in that situation, especially the sympathetic, the par vagum, and its recurrent branches, any interference with which has been proved by the experiments of Dr. Alcock, of this city, and others, most powerfully to influence the function of respiration; and Le Gallois found that in young animals the division of the recurrents was sufficient to cause almost immediate death. This latter agency, especially when exercising its influence in conjunction with the others just mentioned, it seems to me reasonable to believe must contribute to the remarkably rapid extinction of the powers of life. The affection, at least, must be different from either ordinary apoplexy or suffocation, for it happens in an

* While writing these observations, I was requested to examine the body of an infant, aged five months, son of an esteemed medical friend. The child was taken out of bed at seven o'clock in the morning, was fed, and again laid in its cradle, appearing to be perfectly well; but in a few minutes the attendant thought there was something unusual in the sound of its breathing, and on approaching it, it appeared to be dying, which was the fact; in a few minutes it expired without a struggle. On examination, no remarkable morbid lesion could be discovered which would satisfactorily account for its death. There was serous effusion on the surface of the brain, one hemisphere of which was more transparent and gelatinous than usual; the upper aperture of the thorax appeared to me of unusually small dimensions; the thymus was not enlarged, but it was very hard from the deposition of a firm tubercular matter in its substance, and the part of the trachea over which it lay was distinctly flattened; there was also very extensive mesenteric glandular disease, and the heart was empty and wrinkled. I am strongly impressed with the belief that in this case diminished space in the aperture of the thorax, conjoined with the indurated state of the thymus led to the fatal event, in a manner analogous to that which would be the result of hypertrophy of the gland.

† Several instances of such diseases are detailed in Cruveilhier, Portal, Lieutaud, and others.

instant: while you are looking at the infant, it droops its head and dies, and generally without effort or struggle of any kind. It may be also that in this case the ascending cava does not supply a sufficient quantity of stimulus to the heart, while at the same time the compression of the brain, by interrupting the nervous influence, tends to superinduce paralysis of that organ. Kopp attributes the sudden death in these cases to the pressure on the air tubes.

With respect to the treatment, it is either immediate or preventive. When a paroxysm comes on, the child should be placed in the upright position, with the head slightly inclined forwards, and in this way exposed to a full draught of fresh, cool air, while cold water is at the same time sprinkled over the face. Every means should be taken to remove as far as we can the compression from the veins and nerves, as well as to relieve the oppressed action of the respiratory system. When children are subject to fits of this kind, food should never be given by laying them on their back, and tossing the food down their throat, for this is very apt to bring on a paroxysm; and they should never be rudely awoke, or roused suddenly from sleep.

With regard to the treatment to prevent the return of the disease, we should adopt such a plan as would have the double effect of removing hypertrophy and local congestion, and improving the tone of the general system. Our curative measures must be directed, in part, locally to the situation of the enlarged gland, the reduction of which we should aim at by the application of leeches, blisters kept running, or frequently repeated, and discutients, such as ointments containing iodine; while we give internally aperients, of which those that contain mercury, especially calomel, have been found most serviceable. In some cases antispasmodics and sedatives will do good, such as musk, camphor, assafœtida: preparations of zinc, especially the cyanuret, have been extolled by some, and the cherry-laurel water, in combination with depletion, has been used with advantage. Along with such measures we should, if possible, adopt removal into the fresh air of the country, sea-bathing, and a careful regulated system of diet, which should be good, but of a kind not likely to stimulate. In weakly debilitated children, minute quantities of sulphate of quinine, continued for some time, are productive of great benefit.

In October, 1834, I saw, in consultation with the Surgeon-General, the infant child of Mrs. L., aged seven weeks, who had had three or four paroxysms of this affection: one of them very severe, lasting so long that the nurses thought the child must have expired before it could recover its breath; and for several hours it appeared in great distress. The child was in every respect the very picture of perfect health, and all the functions proceeding with the greatest regularity; but it appeared to me that the situation of the thymus gland was fuller than it ought to be, and on this view I acted. I had a leech applied near the part, which I directed should be diligently rubbed with a discutient and slightly irritating liniment twice a day, and administered, internally, calomel combined with jalap. This plan of proceeding being approved of by the Surgeon-General, was continued, and the child had no return of the attack.

It should be mentioned, that in most cases where benefit is derived from the treatment adopted, the recovery is very rapid, being not unfrequently complete within a few weeks.

In cases of this kind much blame is attributable to the system of excessive repletion adopted or permitted by mothers, whose over anxiety for the child's welfare leads them to indulge it in the use of improper aliment. I was called some time ago to a case of this kind, and found that the mother was in the habit of giving the child wine, punch, and bottled porter. On asking why she did so, she said it was to keep off the fits, for if the child did not get such things when placed before it, it became irritated, and a fit was generally the consequence. How easy would it have been to keep such things out of sight altogether! Very often after a paroxysm the child will remain many hours apparently in a state of great distress, starting, screaming, and clenching the hands, or twisting the thumbs into the palm, refusing to suck, or doing so ravenously, and moving the head as if in pain. Under such circumstances I have found nothing so soon or so effectually give relief as a small blister applied to the nape of the neck, a purgative of calomel, followed, perhaps, by an injection, and immersion to the hips in warm water.

Sometimes I have thought it necessary to premise the application of one or two leeches to the head.

About twenty years ago, Allan Burns, who foresaw that the occasional enlargement of the thymus gland might be a cause of serious disease, proposed to dissect it out. This would be certainly a most decisive operation in the way of cure, for after its performance the infant would not be likely to be troubled with this or any other complaint. I may observe here that this disease has been noticed by some authors, though it has not received the attention it deserves. Kopp, in the year 1830, described it under the name of asthma thymicum, and were it not likely to extend the limits of this paper unnecessarily, I would cite some of his cases to show that it is the same disease.* In one of them he observes that the mother of the child was of a strumous habit. It has been already observed that this disease is most frequently met with in scrofulous children, and in the children of scrofulous parents, although perhaps not exhibiting symptoms of that disease. There appears in some instances to be a family predisposition to this affection, so that several of the children take it in succession. It is scarcely necessary to observe, that all diseases affecting the function of respiration are likely to lead to this: the same may be said of the irritation of dentition, during which the condition of the child should be closely watched. Enlargement of the mesenteric glands is by some supposed to be a predisposing cause,† but I believe we only know that the two affections are very often found coexisting; and I may remark here, that it is much oftener seen in boys than in girls; in, at least, the proportion of seven or eight to one. The disease is not entirely confined to the period of infancy, for in Sir A. Cooper's work‡ a case is given in which the patient was 19 years of age. It has also been observed by Meckel and various modern authors. Sandifort, in his Pathology describes an enlargement of the thyrcid gland in very old persons, but does not state what the symptoms were during life.

Lieutaud§ mentions the case of a man of 35 years of age, who had long suffered from pain in the chest, cough, violent headache, and want of sleep. The lungs and thymus were found scirrhous; and it is mentioned that "the heart was empty, and remarkably contracted on itself."

A second case,‖ recorded by the same author, occurred in a young man of 20 years of age, who, after inflammation within the chest, remained affected with dyspnœa, and difficulty of lying on the left side; the body became œdematous, cough very troublesome, and the respiration so much impeded as to threaten suffocation. Empyema occurred, and the patient died. On examination the thymus was found of enormous volume, and scirrhous; and the lungs were equally diseased.

In the close of the year 1834, I attended a post-mortem examination with Dr. Harty, the subject of which had died of an affection almost precisely similar to that last detailed. He was a young man of 28 years of age: the tumour occupied the situation of the thymus, and was of immense size.

Since Kopp's treatise on the Asthma Thymicum, some cases have been published by Hirsch, of Kœnigsberg, and others, all agreeing in the general characters already described. There is also a paper by Mr. Hood, of Kilmarnock, in the third volume of the Edinburgh Journal of Medical science, p. 39 (this latter paper preceded Kopp's, having been written in 1826,) detailing some highly interesting cases of this affection, with very judicious remarks thereon.—*Dublin Journal of Medical Science*, July, 1836.

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8. *On Thymic Asthma*, compiled chiefly from the papers of Drs. Kopp and Hirsch, of Kœnigsberg.—The Germans describe under the name thymic asthma, or Kopp's asthma, an affection peculiar to childhood, characterized by fits of suffocation, during which respiration appears suspended, and which return periodi-

[* See an account of the researches of Kopp and Hirsch, in a subsequent page, present number.—Ed.]

† Mr. Burns seems to take quite an opposite view of the relation between the disease in the mesenteric glands and the enlargement of the thymus, which latter he appears to regard as the cause of the former. "By pressing on the subclavian vein it obstructs the passage of the chyle, and may thus excite disease in the mesenteric glands."—*Principles of Midwifery*, page 728, seventh edition.

‡ Jam cit. p. 44.

§ Hist. Anat. Med. t. ii. p. 11, Obs. 118.

‖ Op. cit. p. 118, Obs. 851.

cally, especially on awaking or attempting to swallow, or when the child utters cries. The cause, as the name indicates, consists in too great a developement of the thymus gland.

The first observations made by Dr. Kopp regarding this disease, were in three consecutive cases; the patients were the seventh, eighth, and ninth children of a delicate mother, who had previously borne six healthy children. The three patients alluded to died at the respective periods of seven months, ten months and twenty-one weeks. The symptoms, equally characteristic in all of them, were suffocation, swelling of the face, spasmodic motions of the hands and feet, and thrusting out of the tongue between the teeth. The paroxysms became from day to day more aggravated, and particularly when awakened from sleep, the little patient uttered a very peculiar plaintive cry; during the fit, the pulse was irregular and intermittent. In one of the cases the sound of the heart was inaudible.

The most prominent feature in the post-mortem examinations was the appearance of the thymus gland; in one case it might have been mistaken for the lung, it was so thick and hypertrophied: it extended from the thyroid gland to the diaphragm, was two inches wide, weighing more than an ounce, and pressing strongly against the trachea; on cutting into it, there flowed from out its whole tissue a quantity of milky fluid. In another post-mortem the thymus was found occupying the whole anterior part of the chest, and forming with the superior part of the thorax, adhesions that could be removed only by the scalpel: it was united to the thyroid gland by thick cellular tissue. By the thymus covering the whole heart, the sounds of that organ had been intercepted during life. The lobes of the gland were elevated and enlarged; its parenchyma presented no trace either of suppuration or tubercles, or any other degeneration; on pressure being applied, there came away an abundant milky humour, like the spermatic liquor in consistence. The lungs were dark red, engorged with blood, as in asphyxia.

In the history of these three observations we find as constant phenomena. 1st, A suspension of respiration coming on periodically, accompanied by an acute and plaintive cry, and with signs of anxiety. 2nd, The return of these fits of asthma, particularly at the moment of walking, or when the little patients uttered cries, or made attempts at deglutition. 3d, The habitual position of the tongue, which was stretched out between the lips. 4th, On examination after death, the excessive developement of the thymus gland.

Dr. Kopp states that this disease occurs more frequently than has been supposed: he considers that it has often been confounded with the asphyxia, or asthma, described by Millar. In many children it is observed, when they cry, that the respiration is suspended sometimes so long as to cause suffocation; a phenomenon which usually persists to the age of four or five years, and which the author attributes, for the most part, to hypertrophy of the thymus.

In Rust's Magazine for 1825, there is an observation by Professor Eck, under the title of "Millar's asthma," which Dr. Kopp looks on as a description of the disease in question. In fact, the progress was the same, the characters identical, the same apyrexia, paroxysms alternately strong and weak, with intervals when the patient was completely free from them; death occurring during a fit, and, in fine, the lungs encroached on by an enlarged thymus gland. The same journal, (1826) gives another observation by Dr. De Velsen, of Clives, in which the symptoms and post-mortem results were all similar to our detail.

Dr. Kopp relates five observations of thymic asthma, from Drs. Rullman, of Weisbaden, Tritschler, of Kannstadt, and Ulrich, of Coblentz. The French reviewer of the work considers that two of these latter observations do not properly belong to thymic asthma: for in one, the subject died sixty hours after birth, and in the other the subject was three years old when the disease set in, and consisted in a cartilaginous alteration, or rather hypertrophy of the thymus gland. In the three other cases the disease occurred in male children, a circumstance to which we shall return. The subjects of two of Dr. Rullmann's observations were brothers. In one the disease set in when the child was about three weeks old—the fits and other symptoms were identical with those already described; at the end of twenty-one months after the disease had manifested in its progress various remissions and exacerbations, the child was one day stooping to pick up something, when he was suddenly seized with vertigo, throwing himself back into his father's arms: his face became blue, the extremities stiffened, a general paleness covered

the whole body, the fæces and urine passed involuntarily, and the patient died suffocated.

On examination after death, the thymus was found reaching from the superior edge of the sternum to the diaphragm, not only covering the windpipe and pericardium, but also the whole anterior part of the lungs; it was rather firm, and somewhat granular in appearance, and was of a pale red colour; there was no pus, no inflammation nor hardness, and there did not exude any of that milky liquor as observed in the former cases.

In another case the attacks set in at the third month, occurring mostly at the moment of awaking, returning only every six or eight days, and lasting but about three minutes. Towards the sixth month, the period of dentition, the attacks became aggravated, but on the appearance of the teeth they became milder, but soon after returned with increased violence. In this case it was observed that the tongue did not protrude. M. Rullmann had treated these cases at first by anti-spasmodics and derivatives, but when he became more certain of the true pathological condition in this disease, he considered the following treatment more rational: —Plummer's powder, with cicuta, and a small blister to the sternum; low diet, with residence in the country, and removal of all causes of uneasiness that might provoke the child to cry. Calomel purgatives, occasionally administered, were always of singular service. On pursuing this treatment for two months, the fits became less frequent, and at the end of the second year the cure was complete. At the age of four years the boy had hooping-cough without being attended by any recurrence of the fits.

Dr. Tritschler's patient was aged seven months, when he was first attacked with the former described symptoms, the fits returning during a period of six weeks, every time the boy was laid on his back. The treatment at first consisted of anti-spasmodics and derivatives, without benefit; at a later period, calomel and digitalis were administered, and under the influence of these medicines the fits became less and less frequent, and at length ceased entirely at the end of nine days.

Though the symptoms in this last case were identical with those observed in the cases of which the post-mortem examinations have been detailed, it is yet hard to conceive how so great a diminution of volume of the thymus as is inferred could have taken place in the short space of nine days.

In the work of Dr. Kopp, besides the facts so highly deserving of attention, we find an analysis of all the works that have appeared on the organic affections and changes of the thymus gland. After Kopp come Caspari and Pagenstecher, who do not consider the hypertrophy of the thymus as a cause of asthma; Conradi, Schneider, Brück, Pitschaft, Wanderlich, Brunn, Kornmaul, Haugsted, Becker, and of late Dr. Hirsch, of Königsberg, whose excellent little work we shall now analyse.

In the first case that presented itself to Dr. Hirsch, he was not acquainted with the result of Kopp's researches, and consequently the true character of the disease escaped notice. The subject was a little girl, of apparently a good constitution. When five months old it was observed that the respiration appeared wholly suspended at the moment of awaking, like a person suddenly deprived of air; this state lasted only a few minutes, when the child resumed all her gaiety. She continued in this way occasionally until ten months old, when, having the hooping cough, she awoke one morning with a slight cough. Her mother ran to the bed, but the child had expired without convulsion or any agony. There was no autopsy.

The two next cases he met with were in children of from five to ten months. The two first died asphyxiated, one after eight months' illness, the other after three; in the latter the usual symptoms were complicated with epileptic phenomena. The thymus of the first of these children occupied all the anterior mediastinum, and was composed of two large lobes, besides several small ones. An appendix of the gland rose about its middle, and surrounded the common jugular vein: the glandular parenchyma was firm, and it weighed nine drachms and a half.

The thymus of the second child was not so thick, nor of so close a texture; it extended from the thyroid gland, beyond the pericardium, which it covered; it

had contracted adhesions with the arteria innominata and right carotid, and its weight was six drachms six grains.

In the two following cases the termination was favourable.

C. N. was weaned at nine months, and, soon after an attack of bronchitis, fits of dyspnœa set in, which soon became alarmingly aggravated, and returned every hour; they were annonnced by a small sharp cry, or by a train of short feeble bleating *expirations;* these were followed by six or eight strong sibilant *inspirations*, similar to those observed in croup. The child threw himself backwards and became pale; the paroxysm lasted about one minute; he then remained quiet and cast down for some moments, and then resumed his habitual good humour. M. Hirsch applied leeches and a blister, and gave a purgative of calomel and rhubarb, which was vomited. He afterwards gave the aqua lauro cerasi, three drops three times a day, increasing the dose one drop every two days; the sixteenth of a grain of musk three times a day, and every morning a small quantity of the watery tincture of rhubarb: these medicines, together with inhaling pure and temperate air, produced such an improvement, that at the end of three weeks the attacks were reduced to one in twenty-four hours, and even that was by no means violent. The following month dentition threatened a recurrence of the attacks, but the predisposition was successfully combated by leeches, purgatives and frictions of tartar emetic ointment. The child did well afterwards.

R. M. at the age of ten months, after having been weaned, began to be affected with asthma; the respiration was suspended three or four times a day, whenever he played or cried, but never on awaking. Three weeks after there came on an aggravated attack, which left no further doubt of the existence of thymic asthma. The child had a few minutes before the attack been amusing himself in play, when suddenly he fell backwards, the face became livid, foam burst from the mouth, the hands became clenched, the limbs convulsively agitated, respiration suspended. Some minutes after the child rallied, fell asleep, and on awaking there was a repetition of the symptoms. Recourse was then had to the leeches applied to the sternum, and a tartar emetic plaster to the chest. Calomel and rhubarb were also administered. This treatment was followed for a month, at the end of which time the spasms diminished, and the suspension of respiration which used to occur four times a day, returned but twice a day, and at length ceased entirely. In a month more his health was completely re-established.

Having given those cases, let us now look to the general features of the disease. Thymic asthma attacks children from the age of three weeks to eighteen months, but more particularly between the fourth and tenth months. It is characterized by spasms of the chest and great suffering, returning in fits; the respiration fails, and there is observed only an incomplete, short, acute, and hissing inspiration; the air finds a difficulty in passing through the glottis, which is constricted. The sound accompanying the inspirations is like the sonorous sound in hooping-cough, but is finer, more acute, and the note is higher. The spasm of the neck resembles that of hysterical females, or those affected with disease of the heart. In some children there are five or six inspirations, at first hissing, afterwards deeper and more painful, alternating with an expiration scarcely perceivable, the noise of which is like the sound in croup. In violent fits the respiration is completely suspended. The acute cry in inspiration is heard either in the beginning of the fit, when it is soon smothered by the respiration becoming suspended, or it is heard towards the end of the fit, when the patient begins to take breath. This cry is a constant and pathognomonic sign of the disease. The other phenomena that supervene are the natural effects of the want of respiration. The child bends the trunk backwards with violence, or when the fit is intense, falls backwards, the countenance indicating painful anxiety: the face at first is blue, afterwards pale; the nostrils are expanded; the eyes fixed; the hands cold, with the thumbs clenched. There are occasionally involuntary excretions; the fit lasts from half a minute to three minutes, after which the patient cries and is ill at ease for some time, but soon recovers his habitual cheerfulness. Children of delicate constitutions, or after violent fits, remain a longer time pale, cast down, and disposed to sleep. In the intervals they appear to enjoy perfect health, and present no symptom to distinguish them from children of the best constitution. Indeed, Kopp states, that in the intermissions the beating of the heart cannot be distinctly perceived, and that the tongue is always a little protruded; but the latter sign is

not always constant, and there are many perfectly healthy children in whom it is sometimes difficult to hear the sounds of the heart. The fits of suffocation set in more particularly when the child awakes, is vexed, or attempts to swallow with avidity, and in general in all those motions in which the organs of respiration are interested. At first they are of rare occurrence, becoming afterwards more frequent, and more easily induced, until they reappear at length ten or twenty times a day. In the last named state, death often takes place during a fit, which seizes on the child at the moment he is laughing joyously; but very often the disease passes to a second period, characterized by general epileptic convulsions. The epileptic and asthmatic attacks do not always coincide, but rather alternate. Caspari has observed that the muscles of the hand, and the adductors of the thumbs, are convulsively contracted even during the intermissions. Death in this stage of the disease commonly occurs in a fit of apoplectic suffocation, and often is quite instantaneous, without the slightest precursory symptom.

On examination after death, the first signs that strike one are those of asphyxia. The livid appearance of the skin, stasis of blood in the brain and lungs, flaccidity of the heart, and the foramen ovale very often not closed; but the most remarkable phenomenon is the hypertrophy of the thymus. The developement of this gland takes place both in length and breadth, but most of all in thickness. When the thymus is very much thickened, the lungs are compressed and pushed aside; these organs in some cases contract adhesions with the large venous and arterial trunks of the chest and neck. The tissue of the gland is either in a normal state, or, which is more frequent, is found denser, redder, more fleshy, but without any trace of inflammation, induration, tuberculization, or any other degeneracy. On cutting into it there occasionally exudes a milky liquor.

Dr. Kornmaul speaks of a thymus weighing fourteen drachms; F. Plater of one weighing half an ounce; Dr. Hirsch of a gland weighing nine and a half drachms; Dr. Van Velson of one weighing nine drachms: the weight in general varies from six to seven drachms.

Dr. Hirsch very reasonably considers the only true thymic asthma to be that depending on a hypertrophy of the gland, and distinguishes it from those cases where the new born child dies of suffocation, from the congenial developement of the gland not allowing respiration; and also those cases where the thymus presents a tuberculous, schirrous, fatty, or ulcerated alteration, &c. &c.

All these changes have quite a distinct pathological character, and do not belong like simple hypertrophy, exclusively to childhood. Thus limited, thymic asthma constitutes a disease peculiar to childhood, presenting peculiar symptoms, progress, and etiology, and requiring peculiar treatment. The duration of this affection varies from three weeks to twenty months; sometimes several months pass without the recurrence of spasms, until they are brought on by some intervening disease: in the early stages the cure is possible.

Among the predisposing causes of thymic asthma are ranged, first, scrofulous habit; second, weakness of constitution; third, pulmonary affections, such as phthisis; fourth, affections of the womb of the mother; fifth, hereditary disposition, and that more particularly in the male sex. All diseases of the bronchial system favour the developement of this disease. Teething, and certain affections of the bowels and mesenteric glands, are also predisposing causes.

Thymic asthma seems not to have been entirely unknown to other physicians; thus Dr. Marsh* relates a series of observations of a disease which he describes under the name of spasm of the glottis, and which is evidently the same as Kopp's asthma; but the Irish physician appears not to have made any *post-mortem* examination, and makes no mention of the disease of the thymus. Alexander Hood† found enlarged thymus glands in seven children, and two adults who had died of asthma. Richa,‡ Verdries,§ and Hert,‖ who wrote nearly a century ago, recognised hypertrophy of the thymus as a cause of asthma in children. P. Frank¶ says that in puerile asthma the bronchial glands, and particularly the thymus,

* Dublin Hospital Reports and Communications.
† Edinburgh Journal of Medical Science.
‡ Constitutiones Epidemicæ Taurinenses, 1728.
§ Dissertatio de Asthmate Puerorum. Giess. 1726.
‖ Ibid. Gottingern gelehrte Aug. 1832.
¶ Epitom 6. 2. p. 175.

have been found tumified in a remarkable manner. However, to Dr. Kopp belongs the honour of having first given a certain history and diagnosis of this disease, and of having published the first treatise respecting it *ex professo*.

Kopp's asthma is distinguished from *Millar's asthma* by the greater number and shorter duration of the fits, as well as by its progress being more chronic.

In chronic hydrocephalus children mostly awake starting, holding their breath, and fall into a state analogous to the fit; in the thymic asthma the same accidents occur when they cough or cry. It will be easy to diagnosticate the first of these diseases by the decided symptoms that are peculiar to it; yet there seems to exist a relation between these two diseases. M. Hirsch recommends an examination of the thymus in autopsies of children who have died of acute hydrocephalus.

But there is one state with which thymic asthma might be easily confounded: very often with irritable children who have been much indulged, the respiration is suspended, and many of the phenomena of thymic asthma appear at a moment when they may be crying under the influence of bad temper. But the symptoms in such a child are distinguishable from those of a child affected with thymic asthma, for the stopping of the breath will occur with the former only in a moment of irritation, and never on awaking, or swallowing, as happens in the true asthmatic fits.

From these considerations Dr. Hirsch defines Kopp's asthma to be a disease peculiar to infancy, characterized by tonic spasm of the lungs, larynx, and glottis, returning in fits extending at a later period to the cerebro-spinal nervous system, under the form of epileptic convulsions, and causing death by suffocation, by apoplexy, or by asphyxia. The cause of this disease consists in a hypertrophied thymus nowise altered in its substance, which by its weight and volume presses on the heart, the lungs, the large arterial and venous vessels, and prevents the free exercise of their functions. The prognostic is almost always fatal; however, when the subject is robust, and but little disposed to catarrhal affections, when the case is recent, the paroxysms weak and remote, and that it is not complicated with epileptic convulsions, some hope may be entertained. The indications are various.

1st, *During the fit.* The only thing to be done is to put the child standing up, or to incline the body forwards, to strike him lightly on the back, and to throw a little cold water in his face; any other assistance would be useless.

2nd, *To moderate the violence of the spasms.* For this purpose aq. lauro-cerasi in small and graduated doses, musk, assafœtida, zinc, and according to Paganstecher, the cyanuret of zinc may be successfully employed.

3d, *To avoid congestions of the heart or lungs, and to prevent increased activity of these organs.* A very low diet, abundant and often-repeated local bleedings, issues on the chest, frequent energetic purgatives, with aqua lauro-ceraci, will succeed in this object. The evacuant and antiphlogistic method is best employed with robust children. The antispasmodic treatment should be had recourse to with children of delicate constitution; but according to the exigency of the case, both may be combined with the best effect.

4th, *To combat directly the cause of the disease.* By antiphlogistic, evacuant, and derivative means, the developement of the thymus may be arrested. For the purpose of diminishing the growth of the gland, several remedies have been proposed, viz. mercurials, antimonials, cicuta, digitalis, animal charcoal, and iodine. These means sometimes succeed, but their success is by no means constant: however, by uniting them with other agents, and particularly by enforcing a strict regimen, we may sometimes succeed in curing a disease which at all times presents alarming characters, and the extreme gravity of which deserves the attention of all practical physicians.—*Ibid. from Gaz. Med. de Paris*, 9th January, 1836.

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9. *Acute Pericarditis.*—A case of this kind is published in the 4th number of the St. Thomas' Hospital Reports, as a peg to hang some valuable clinical remarks, by Dr. Roots. The patient was a butcher, aged 30, admitted on the 17th December, who, after exposure to wet three weeks previously, was attacked with rheumatic pains about his shoulders and arms; but he did not discontinue his work. In a week, the pain settled in the region of the heart, accompanied by palpitation. He then was confined to the house—the joints of the lower extremities swelled, but did not change colour—motion was stiff and painful—surface of body covered

with sweat—tongue coated and moist—thirst—confined bowels—pulse 98, and hard—respiration hurried. "A very distinct rubbing sound may be heard over the region of the heart." No medicines or means had been used. He was bled to eighteen ounces, and had five grains of calomel every six hours, after an aperient. The blood was buffed and cupped.

The next evening the breathing was oppressed, and the cardiac pain increased. Again bled to 12 ounces.

Dec. 19th. The bowels are much relaxed. The pain in joints and region of the heart diminished. The calomel omitted, and half a grain of opium given every four hours. 20th. The calomel was again resumed every four hours. 21st. Much the same, but has cough, with frothy expectoration of mucus. The rubbing sound of heart continues. The bowels being much relaxed the calomel was omitted.

"Dec. 22. Has slept but little during the night, and talked incoherently. The swelling of the joints has diminished considerably, but he is still unable to move them on account of pain. The breathing is still rather short and the cough increased. The rubbing sound is slightly lessened. The purging has diminished and the tongue is less coated. He is now in a profuse perspiration. Pulse 96. *Applic. Hirud.* xij. *reg. cord.* ℞. *Hydr.* c. *Crct.* gr. v. *Op.* gr. ½ *4tis hor. Inf. Catech. Comp.* ℥j. *cum sing. dos. pilul.*

Dec. 23. Has had a restless night and talked incoherently. The bowels continue purged. The tongue is still covered with white fur, except a streak down its centre and its tip, which are reddish. The action of the heart is irregular, intermitting at almost every third beat, and he has rather more pain on pressing up the diaphragm and taking a deep inspiration at the same time. ℞. *Infus. Catech. C.* ℥ij. *sing. dos. pilul.*

Dec. 24. The bowels have only been relieved twice since the last report, and the tongue remains coated, its tip brown, and the central streak assuming the same character. The rubbing sound is less distinctly heard, but the pulse continues irregular, about 90, and will not bear much pressure. The cough has considerably increased, and the respiration is loud and sonorous. *C. C. ad* ℥iv. *reg. cord. Adhib. Cuc. Sicc. pectori et postea Emp. Lytt. amplum.*"

From this time he gradually but slowly recovered, and was discharged on the 9th Feb.

Dr. Roots remarks that this case offers an answer to those, who say that "bleeding in acute rheumatism gives rise to inflammation of the pericardium." We confess that we never heard such an observation made. We have often, indeed, said, and we still believe, that acute rheumatism will not bear bleeding in the same way, and to the same amount, as common inflammation, say of the pleura; nor will it be cured by bleeding alone. We have seen many instances, also, where large sanguineous depletions appeared to produce metastasis, especially when syncope was induced, and the joints suddenly grew pale and shrunk. It is to be recollected that the pain in the region of the heart, in the above case, commenced *before* the joints became affected, so that, in fact, we had here pericarditis before the existence of *acute* rheumatism, and, consequently, the venesection was necessary and proper for that part of the complaint alone. We see, in this case, no proof that there was metastasis from the joints to the pericardium. The pericarditis was at least coeval with, if not antecedent to, the acute rheumatism.

We agree with Dr. Roots, that the *bruit de soufflet* is not essential as a symptom in pericarditis.

"I merely call your attention to this fact, because in many instances the stethoscope fails to give us any positive indication as regards the existence of inflammatory action going on in the pericardium. You may have, and more especially in the commencement, acute inflammation of the pericardium, without any indication by auscultation to warn you of its existence. It is true that if, in conjunction with the general symptoms of pericarditis, you find a bellows-sound, that would be some corroboration, because you do often meet with a bellows-sound, but still it would only be corroborative of other symptoms."

Pain in the region (dull or acute) and dispnœa are the most common symptoms in pericarditis. The pain is generally increased by inspiration, and often extends backwards to the shoulders and scapulæ, or to the left arm. There is anxiety of countenance, and inability to lie on the left side. The pulse varies much. If effusion to any extent takes place, it becomes irregular. In respect to the bellows-

sound, Dr. R. thinks it chiefly occurs when the lining membrane of the heart itself is inflamed, in addition to the pericarditis.

The rubbing sound, like the creaking of new leather, Dr. R. is inclined to attribute to the effusion of lymph on the investing surface or surfaces. It appears to him very doubtful that it is owing to incipient adhesion.

"With respect to the treatment that was pursued in this man's case, you will remember he was bled twice from the arm, was cupped, and was leeched repeatedly: and though the rheumatic inflammation was considerably diminished, as the effect of the bleeding, yet still the heart never lost, to any considerable extent, its rubbing sound, until his system was put under the influence of mercury. As soon as his mouth became sore, Mr. Jones, who closely watched the case, observed that the rubbing sound diminished. This would probably have been the case sooner, but in consequence of the highly irritable condition of the mucous membrane of his bowels, we were obliged to suspend for some days the use of the mercury, and thus some considerable time was necessarily lost before his bowels resumed such a condition as to bear it; but so soon as his mouth became sore, the rubbing sound diminished. He was kept for some time under the influence of the mercury, and the sound entirely ceased. The treatment adopted was that which was proper for pericarditis generally. You will not find it perhaps always necessary to take blood from the arm in those cases which come into the hospital, because they do not often come here in the early stage. In this case it was absolutely necessary to take blood from the general system, but afterwards local depletion was principally depended upon."

Dr. R. observes that his success in the treatment of pericarditis is much greater now than it formerly was. The reason, he thinks, is, that he now keeps his patients longer in hospital, and suspects that he had often turned them out too soon—that is *apparently*, but not really cured.

"Having had an opportunity of seeing two or three such cases return to me with renewed inflammatory action, I have since that time adopted a different plan, viz. as long as there was this increased activity about the heart, as long as there was any thing like a bellows-sound, provided it was not of old standing, the result of former attacks, I have invariably thought it right to keep my patient for a greater length of time under the influence of mercury, and frequently from time to time to apply either leeches over the region of the heart, or cupping-glasses, so long as there was the slightest proof of insidious inflammation still existing; the consequence is, I may say in the three last cases the patients perfectly recovered."

When the heart remains irritable, after the inflammatory symptoms are subdued, he gives small doses of colchicum, either alone or in combination with digitalis—sometimes combined with henbane or opium.—*Med. Chirurg. Rev.* Oct. 1836.

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10. *Creosote in various diseases.*—Creosote has been employed in the charity Hospital at Berlin it is stated in Dr. Köhler's annual report, in several cases of pulmonary and laryngeal consumption; against carcinoma of the uterus, chronic exanthemata, particularly the itch, and tooth-ache arising from carious teeth. It was generally administered in the form of pills, with the root of the marsh-mallow, and liquorice juice, commencing with half a grain morning and evening, which dose was gradually increased to eight grains, so that the patient had sometimes taken more than 120 grains in three weeks. Externally this remedy was administered in a solution of a drachm to six, eight, or ten ounces of water. The general effects of creosote on consumptive patients were far from being favourable. Given in the various stages of the complaint, it increased the fever and number of pulsations, aggravated the cough and dyspnœa, without easing the expectoration, or changing the quantity and quality of the sputa; it moreover increased the tendency to hæmoptysis, and diminished the secretion of the urine. The digestive functions were seldom deranged during its use; in one case only, the occurrence of severe vomiting on the eleventh day rendered it necessary to suspend the medicine altogether. From its stimulating action on the circulating system, and the increase of fever which it produced, the creosote frequently brought on rapid sinking of the general strength, and the patient died in a very unexpected manner at an early period. In one case it evidently pro-

moted the developement of a dropsical affection, by diminishing the urinary secretion. This remedy never seemed to act as a palliative, much less as a radical means of cure, in the treatment of phthisis, for of twelve patients submitted to its use some died within the space of three weeks, and the rest immediately after its suspension. In one patient, affected with a complication of universal syphilis and laryngeal phthisis, the former complaint was much aggravated during the treatment. The same unfavourable results were obtained by the experiments made with the creosote lotion in cases of carcicoma uteri. The disease continued to march without any modification, while no change took place in the discharge, the pains were remarkably increased, and the hæmorrhage continued without any abatement. It was also employed as a lotion, (one drachm to ten ounces of water,) in cases of chronic exanthema, and gave rise to acute burning sensation and injection of the integuments, until the skin became, as it were, accustomed to its use. One case of *impetigo sparsa* of the lower extremities, which had existed for several years, was cured within eight weeks; but it produced no effect in a case of *impetigo scabida* of the face and arms. In several cases the creosote cured scabies within eight days. It acted in the most remarkable manner on the pain arising from carious teeth; the application of a small quantity with a bit of wool to the carious cavity invariably produced cessation of the pain within a few minutes.—*Lancet and Rust's Magazine, Bd.* 46.

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11. *Chlorate of Potass in Phthisis.*—This substance, Dr. Köhler states to have been also employed, in the Berlin hospital, in 25 cases of tubercular phthisis, in the following form:—℞ *Kali chlorinici*, 5j. Dissolve in *distilled water*, four ounces, and add of the syrup of *marsh-mallow*, one ounce. *M. D. S.* A table-spoonful to be taken four times a day.

Whenever the medicine was well supported by the stomach, it was carried to one and a half or two drachms. Four of the patients submitted to this remedy were of the climacteric age; the rest, though younger, had all passed the period of puberty. All the patients had arrived at the second stage of the complaint; in only one case the disease was at its commencement, and at another it had reached the colliquative stage. The effects were very similar to those of creosote. It increased the pulse and cough, and produced pain in the chest and bloody sputa, without improving the expectoration. In addition to this it acted in an unfavourable manner on the digestion, diminishing the appetite, producing pain in the abdomen, and watery diarrhœa, and, in many cases, it became necessary at once to lay the remedy aside. The secretion of urine was rather increased than diminished. It was, however, much better supported when united with some digitalis, or cherry-laurel water, or, in case of purging and colic being produced, with *laudanum*. The duration of the treatment varied from eight days to eight weeks, and more. Of the 25 patients 19 died, and four were left unrelieved; of the two remaining, a woman, whose disease seemed rather to be ulcerated phthisis, (*phyzulcerata*), and a man, above 30 years of age, the hectic fever and expectoration gradually diminished, and thence disappeared; the appetite became improved, and with it the patient's strength, and at length the cure seemed perfect. The man's case was entirely lost sight of; however, the woman was seen by Dr. Köhler a long time afterwards in the best health. Although the general result of the experiments made with this latter remedy was unfavourable, yet the author thinks it should be admitted amongst the number of medicines useful in pulmonary phthisis, though its stimulating action on the circulating and pulmonary systems cannot be denied. Its use is contra-indicated in cases where the fever runs high, where there is any sign of inflammation of the lungs, or any tendency to hæmoptysis.—*Ibid*

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12. *Nitrate of Strychnine in Paralysis.*—Dr. Köhler states that this article has been employed in the Berlin Hospital, in several cases of paralysis, arising either from cerebral hæmorrhage, poisoning with lead, rheumatism, or tabes. The eighth of a grain was mixed with ten grains of sugar, and one powder given daily, at the commencement. After a lapse of eight or ten days, or when the remedy seemed to produce little or no effect, the same quantity was administered twice a day. The highest dose taken was half a grain morning and evening; but this quantity soon brought on violent convulsions. Neither the small nor the

more considerable doses produced any remarkable influence on the ganglionic nervous system. It was almost always well supported by the stomach, and, in a very few cases only, gave rise to vomiting. In a short time after its administration, the pulse became more frequent and full, the temperature of the skin more elevated, the cheeks slightly red, and the increased warmth was followed by a gentle and universal perspiration, which produced a sensation of relief to the patient. The remedy did not seem to increase any other secretion than that of perspiration. In cases where small doses only were administered, the patients experienced slight pains, and a sensation of stiffness and weakness in the affected part, which rendered them unwilling and incapable of making any efforts with their limbs (where the latter were only partially paralyzed); however, after the lapse of a few hours, the same parts recovered their former power of motion, with a feeling of increased activity and strength. Higher doses of the strychnine produced flashings of the eyes, convulsions of the limbs, and in some cases, especially in females, violent and general convulsions, accompanied with quick respiration, and a complete periodic suspension of the breath. When the intellectual faculties became affected, the effect manifested itself in prostration, depression of the spirits, and a strong tendency to cry. Other patients were affected in an opposite manner, and laughed excessively, even on the slightest occasion. In some individuals of nervous temperament, the sensibility towards external impressions was so great, that they broke out into an uncontrollable fit of violent laughter as soon as they were touched with the finger. In a few cases it was impossible to continue the medicine in any dose; in others, where a large quantity was given, it produced severe symptoms of congestion towards the head and breast, with pain in the chest, and head-ache, hæmoptysis, symptoms of cerebral apoplexy, and general fever. Hence its use is contraindicated in individuals of a plethoric temperament, where the pulmonary system is easily excited, or where there is any marked tendency towards congestion of the chest or head.

Strychnine seems to produce an excitation of the whole nervous system, and particularly of the vertebral nerves, together with a secondary action on the vascular system and organs of secretion; but it does not communicate any durable increase of force or power. Hence it seems much better adapted for cases where the excitability has been simply exhausted by frequent action of some powerful or specific stimulus, where the power of the nervous system seems to slumber, and to require nothing but a proper excitant to bring it into action. In cases of general feebleness, or true exhaustion of the vital force, it generally produces more injury than benefit. Hence we should always begin with small doses, given at considerable intervals, and increase the quantity very gradually, in order to keep pace with the increased action of the nervous system, and avoid producing the exhaustion which accompanies this artificial excitement. As to the effects of the remedy in cases of paralysis, there were some fortunate,—sometimes no result occurred,—the latter was much more frequent than the former. In a very few instances only was the cure complete, that is to say, the members which were partially or completely paralyzed recovered complete power of motion, and this state continued during the eight to twelve weeks' employment of the remedy. It generally produced, for the first few days of its employment, a manifest amelioration; but in most cases it was impossible to obtain any further relief, even by considerable increase of the dose. On the contrary, where the dose was elevated, in the hope of keeping up the improvement manifested in the early stage, the strychnine produced more evil than good, by bringing on convulsions, followed by an increase of the paralysis. The patients often supported well one-eighth of a grain once or twice a day, and then improved a good deal; but when the dose was increased to two-eighths once or twice daily, it very often occasioned some of the accidents above mentioned, and it became necessary to suspend the remedy altogether. In cases of this kind, it was generally necessary to abandon this mode of treatment without reserve, as the patients could never again bear even the smallest dose. Authors recommend the external use of strychnine in cases of a desperate nature, where stimulants of every kind have already been employed in vain, and say that from one-eighth to two-eighths of a grain, mixed with from one to two grains of sugar, is well supported, and sometimes produces beneficial effects. When this remedy was tried externally at the Berlin Hospital, it very soon produced pains and stiffness in the paralyzed limbs,

which, however, diminished after the lapse of a few hours. The healthy members were much less affected. The most beneficial results were obtained in cases of paralysis from lead, and after them in rheumatic affections. Its efficacy against paralysis, resulting from cerebral hæmorrhage, was much more confined, and when given for *tabes dorsalis*, instead of doing good, it accelerated the march of the disease.—*Ibid.*

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13. *Venous injection of Tartar Emetic in Tetanus.* By Dr. Köhler.—An ore-smelter, 47 years of age, while engaged in melting some metal, poured a quantity of the fluid into his right shoe. The sole of the foot was burned in a severe manner, and the whole of the tendons, nerves, and blood-vessels of this region were exposed, exactly as in an anatomical preparation. The patient was brought to the hospital of La Charité a few hours after the accident, with symptoms of severe general fever. Some alleviation was produced by blood-letting, with cold local applications, and an antiphlogistic regimen. After the lapse of a few days, the patient, who had been accustomed to the free use of spirituous liquors, was seized with *delirium tremens*, and the agitation of the injured limb, which he kept in constant motion, finally excited an attack of tetanus. This new accident was combated with the potash bath, frictions along the spine with the mercurial ointment with opium, leeches to the neck, and the internal use of opium and laurel-water. As these remedies produced no effect whatever, it was determined to throw a solution of tartar emetic into the veins. The operation was performed in the usual manner, and with the utmost caution. The median vein of the left arm being exposed, a small incision was made into the vein, and a quill introduced through the orifice. The quill was now fixed in the vein, with a ligature, and an ounce of distilled water, containing three grains of tartar emetic, gradually thrown in with a small syringe, whose nozzle exactly fitted the quill-tube. The action of the medicine was instantaneous. The pulse became small and frequent; the respiration accelerated; the pupils sometimes contracted, sometimes dilated; the patient began to cough, and in a very short time vomited once or twice; the body was now covered with a profuse general sweat. The remedy, however, seemed to exercise no influence on the disease. The tetanic symptoms continued unabated, opisthotonos set in, and the patient soon after died. On examining the body, the membranes of the brain and spinal marrow were found considerably congested. The substance of the spinal marrow seemed softer than natural, but otherwise normal. The vein into which the solution of tartar emetic had been thrown showed evident traces of inflammation, from the point of incision as far as the vena cava. The right cavities of the heart were filled with dark coagulated blood. The rest of the body presented nothing worthy of notice.—*Ibid.*

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14. *On the Treatment of some of the diseases of the Brain*, by James C. Pritchard, M. D., read to the British Association at the meeting at Bristol.—It has been said in former years that the art or practice of medicine has made much more rapid advance than the theory or science. It will hardly be disputed that the reverse of this observation holds good at the present time. For many years past, and especially since more precise investigation than was before pursued has been practised, by means of necroscopy, into the exact nature of organic changes, much accurate knowledge has been acquired, which is perhaps scarcely applicable to practicable purposes.

There is no class of morbid affections to which this remark is more truly applicable than it is to diseases of the brain and its investing membranes. Nobody is less disposed than myself to estimate at a low rate the value of information obtained through the medium of researches similar to those of Sir Charles Bell, Drs. Abercrombie, Bright, Hodgkin, Sims, and others in this country; and of MM. Rostan, Foville, and many others on the continent. Knowledge of the precise nature of morbid changes has its value even in a practical point of view, if not by directing us always to remedies, at least by making us aware what we are to expect in particular cases, as the final results of disease; and as pointing out the limits of what is possible, or what ought to be attempted with reference to cure. Still we ought not to lose sight of the fact, that the recovery of patients, and not merely actual pathology and diagnosis, is the ultimate object.

Perhaps all curative attempts in cases of disease affecting the brain resolve themselves into the modifications which medical art is capable of effecting in the vascular state of parts within the skull. We can promote by various means either fulness or inanition of the blood-vessels in the brain. Whether any thing beyond this is in our power is very uncertain. Besides general and local bleeding, all those means belong to the same class which act by refrigerating or heating the surfaces either of the head or of other parts. Refrigerant applications to the head have the effect of contracting the calibre of the arteries, and thereby diminishing the quantity of their contents. Pediluvia or other means of applying warmth to the lower extremities, produce a similar result, by augmenting the capacity of vessels remote from the head, and causing a greater quantity of blood to be determined into them. All these means plainly owe their efficacy to the modification which they bring about in the state of the vascular system of the brain. The only class of remedies respecting the *modus operandi* of which any question can be raised, are those which produce what is termed counter-irritation, and perhaps the doubt which exists in this instance arises from the obscurity of the subject. It is generally supposed, and perhaps correctly—at least it is very difficult to find any other hypothesis on the subject that is more probable—that the means of counter-irritation, such as rubefacients, vesicatories, and issues, produce their effect by lessening an hypoplethoric state of the vessels in internal parts, and that they bring this to pass by increasing the fulness of the vessels in surfaces to which they are immediately applied. These are facts which it is very difficult to reduce under this sort of explanation, as, for example, the relief obtained in cases of pneumonia or of bronchitis, by means of blisters applied to the parietes of the chest, there being in these instances no continuity of structure that might render the proposed explanation in some degree intelligible. On the other hand, there is little doubt that such remedies are most efficacious when they are applied over surfaces nearly in juxta-position with the seat of disease; and this fact, if not called in question, goes far towards establishing the notion before alluded to as to their mode of operation.

As the means which are within our reach for treating disorders of the encephalon are so circumscribed, it appears so much the more necessary to endeavour to apply in the most efficacious manner such resources as we possess. I am not disposed to believe that any material improvement can be made in the ordinary rules for the use of evacuants, or measures of depletion, but I have no doubt that an important advantage may be gained by directing, in a particular manner, the mode of counter-irritation; and it is chiefly with the view of recommending this attempt that I have premised the foregoing remarks. Long experience has convinced me that the most efficacious way of applying counter-irritation in diseases of the brain is a method not often practised in other places, which has been for many years in almost constant use at the Bristol Infirmary.

An objection would probably arise in the minds of those who have not witnessed the application of this remedy, on account of its apparent severity. I hope to convince the medical section, and through this opportunity to make more general than would otherwise be done, the persuasion that the method of treatment to which I refer is by no means so painful or severe a remedy as it might be supposed to be, and that it greatly exceeds in efficacy all other means by which physicians have attempted to relieve diseases of the brain on a similar principle. The application I recommend is an issue, produced either by means of a soft caustic, or, what is much better, by an incision over the scalp. The incision is most frequently made in the direction of the sagittal suture, from the summit of the forehead to the occiput. The scalp is divided down to the pericranium. The incision, when that method is used, or the aperture left by the slough when caustic is employed, is kept open by the insertion of one or two, or in some instances three rows of peas. The discharge thus occasioned is considerable, and it obviously takes place from vessels which communicate very freely with the vessels of the encephalon. It would appear, *à priori*, very probable that an issue in this particular region, just over the sagittal suture, would have a greater effect on the state of the brain than in any other situation; and the result of very numerous trials has abundantly established the fact. I can venture to assert, that in all those cases of a cerebral disease in which counter-irritation is at all an available remedy, an issue of the kind now described is, next to bleeding, by far the

most important of all the means which have yet been, or are likely to be discovered. The kinds of cerebral disease in which counter-irritation is beneficial, include, according to my experience, all those complaints which are accompanied by unusual stupor or diminished sensibility, excluding all affections attended by over-excitement, such as maniacal and hysterical diseases. In the latter, I believe all such measures to be for the most part highly injurious.

A case has lately occurred in my practice at the Bristol Infirmary which strongly exemplifies the efficacy of the treatment which I have recommended, and which I have fortunately an opportunity of bringing before the medical section in the most convincing way. A youth, about 18, came into the Infirmary labouring under complete amaurosis, which had been coming on gradually for a week or ten days before his admission. At that time it had become so complete that vision was entirely lost, and the pupils were totally insensible to light even when the rays of the sun were suffered to fall immediately into the open eyes. At first he was freely and repeatedly bled from the arm and temporal artery, had leeches applied to the scalp, blisters to the nape of the neck, and took calomel so as to render his gums sore. Finding that no effect whatever was produced by these measures, I gave up the expectation which I had at first entertained of his recovering sight, but was resolved to give the remedies a complete trial. I ordered him to be bled *ad deliquium*. This took place after a small quantity of blood had flowed from his arm while he was in an erect posture. After a few days, he was still perfectly dark; an incision was now made over the sagittal suture, from the forehead to the occiput. It was filled with peas. In three or four days, precisely at the time when suppuration began to take place, the patient declared that he perceived light, but was scarcely believed, since the pupils were still widely dilated, and quite insensible to a strong light. In the course of a few days it was quite evident that he saw—he could tell when two or three fingers were held up. For some weeks the iris was still quite irritable, though vision had become in a great degree restored.

The subsequent treatment of the case consisted chiefly in occasional leechings, purging, and low diet: when the issue healed, which was not till it had been kept open for some months, a seton in the neck was substituted: under this treatment the case has terminated in a complete recovery of the blessings of sight. I shall not detain the medical section longer upon this topic, but have procured the presence of the patient, and any gentleman who wishes to examine him, either as to the accuracy of what I have related, or to the degree of sufferings occasioned by the remedy, or to observe the slight vestiges which it has left, will have an opportunity.—*London Med. Gaz.*, Sept. 3, 1836.

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15. *Nicotiana* (*Tobacco*) *in Scarlatina.* In an epidemic of scarlet fever, attacking children of all ages with great severity, and in which belladonna, hyoscyamus, prussic acid, musk, &c. were tried in vain, M. Wolffsheim had recourse to nicotiana. He gave it in the shape of a powdered extract, in doses of from a quarter of a grain to two grains, three or four times a day, according to the age of the patient. In some cases where there was a slight arterial reaction, he added a little mercury, and golden sulphuret of antimony where there was difficulty of expectoration. The results were very satisfactory. Fifty patients under this treatment became convalescent in eight days; and no narcotism was experienced even by the youngest subjects. The digestive organs were undisturbed. M. Wolffsheim adds that his master, Himly, often employed the same remedy with success in epidemics.—*Ibid. and Wiss. Annal. d. ges. Heilk.*

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16. *Nitrate of Silver an Antiphlogistic.*—Dr. Boudin, in an interesting article in the *Gazette Médicale de Marseille*, extols the remedial powers of the nitrate of silver in inflammation in general, and especially in that of the mucous membranes. Dr. B. resorted to this remedy in an epidemic typhus fever, (*follicular enteritis*,) which prevailed at Marseilles, in September, 1835, with striking advantage. He used it as an injection, three to four grains of the salt, dissolved in six ounces of water, administered night and morning. Of more than fifty patients treated by this means, he states, that two only died; and that the post-mortem examination of these established two important facts—1st. That the remedy had not produced any irritation, superadded to the inflammation of the disease; but that many of

the ulcers were in progress of cicatrization. 2nd. That although administered exclusively per anum, the remedy had extended its action beyond the ileo-cæcal valve, and communicated to the inferior portion of the small intestine, the greyish colour observed over the whole extent of the mucous membrane of the large intestine. Dr. B. says it is an error, though a common one, to attribute to the nitrate of silver a local action, and as not exerting any influence beyond the surface with which it is placed in contact. Dr. B. recommends the crystallized salt to be employed as the purest. When given by the mouth, Dr. B. recommends the following formula:—℞. argent nitrat. *crystal.* gr. vj.; aq. puræ q. s. solve. et adde ad saturand. gum. tragacanth. vel amylum. M. fil. pilul. No. xij. One to be taken every half hour until the desired number, as 4, or 8, &c. are taken.

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17. *Case of Jaundice.—Vomiting.—Effects of Creosote.*—We formerly mentioned the high value attached by Dr. Elliottson to the creosote as an antiemetic remedy. The following case affords a striking instance illustrative of the powers of the article.

"Phillis Mosely, æt. 66, was admitted into the North London Hospital July 23d, under the care of Dr. Elliottson. Has been unwell for four months past; her illness commenced with sickness, vomiting, and a constant pricking sensation of the whole surface of the body. She has had no medical advice. These symptoms continued at intervals, and about two months ago she first noticed a yellowness of the eyes, and, soon after, of the whole surface of the body. The appearance of the jaundice was not preceded by any other symptoms than those which had existed for some time previous; viz: vomiting, and the tingling sensation. From her own statement, she appears not to have had any symptoms of hepatitis at this time.

On the 14th instant she came under the care of Dr. Carswell, who gave her two grains of calomel, and three of compound powder of ipecacuanha every night, and 3ij of castor oil every morning; and ordered a blister to the epigastrium, to be dressed with savine ointment. She has received much benefit from this plan of treatment, the yellowness of the eye, &c., having been much decreased. Her gums are a little tender from the mercury; there is some tenderness of the right hypochondrium; she has had frequent rigors for a fortnight past. Bowels regular. Before she came to Dr. Carswell, her motions were clay-coloured, their colour is now more natural. Tongue a little furred and dry. Thirst; pulse moderate. Urine high-coloured. Face yellow, and the superficial vessels enlarged and reticulated, as they are usually seen in organic abdominal disease.

July 24. Cupped in the right side to ten ounces—low diet.

26. The pain in the side relieved, there is now no tenderness of the hypochondrium, or epigastrium. Extremities cold. The sickness and vomiting continue at intervals, in the manner in which they commenced four months ago, without any abatement of their severity. One minim of creosote was ordered every two hours, and ten grains of the compound extract of colocynth every night.

29. There was no sickness after the *first* dose of the creosote. Skin warm and moist.

30. Still better, jaundice decreasing. Omit the creosote.

August 6. There has been no sickness or vomiting since the creosote, and she was so well on the 9th as to be discharged cured.

Dr. Elliottson in lecturing on this case, pointed particularly to the fact of the long continued vomiting being at once relieved by the creosote. Many persons had denied the efficacy of this medicine in cases of vomiting; but he considered that the cases in which those persons had employed the medicine were not proper ones—that inflammatory condition of the stomach was present—or that they had not given the medicine long enough, for in some cases it was necessary to give large doses, and continue them for some time. It had been said that creosote did not act better in these cases than other remedies for vomiting, such as hydrocyanic acid, &c., but his experience gave creosote the preference, the case above was one of the most striking instances of it, however, he had ever met with, the long continuance of the symptoms being its chief peculiarity."—*Lancet, Aug. 20th*, 1836.

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18. *Chloride of Soda in Amenorrhœa.*—M. Chailly states that the liquid chlo-

ruret of the oxide of sodium, given in the dose of from 30 to 60 drops in a pint of wine and water, in the twenty-four hours, promptly brings on the menstrual discharge when suppressed, and renders it abundant when deficient.—*Revue Médicale*, Aug., 1836.

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19. *Inula Helenium in Leucorrhœa.*—M. De Lens extols the efficacy of the *Inula helenium* (elecampane) in the treatment of chronic leucorrhœa, and in lymphatic affections. He employs the root in decoction, in the dose of from 2 to 4 drachms for four cups of water reduced to three, which the patient takes during the day, in three doses. He thinks that an infusion of the root may be as efficacious as this preparation, and it seems the most rational one from the aromatic nature of the article.—*Ibid.*

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20. *Sore Nipples.*—Dr. Allard has successfully employed for the cure of this troublesome complaint a solution of the nitrate of silver, (two grains of the salt to one ounce of distilled water). The nipples were washed with this every time after taking the child from the breast.—*Journ. de Med., &c.* Sept. 1836.

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21. *Cure for Tetter.*—Dr. Savardan, in a communication in the *Journ. des Connaiss. Med. Chirurg.* for January, 1836, boasts of having obtained great success in the treatment of tetters, (*dartres,*) by an ointment composed of one part of the sulphuret of lime and eight parts of lard. This ointment is rubbed on the affected part with the palm of the hand, for a quarter of an hour, morning and evening.

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22. *On Scarlet Fever, as it prevailed epidemically in Edinburgh, during the autumn and winter of* 1835-6.—Scarlet fever has been so extensively prevalent during the last few years in the United States, and its results have been so frequently fatal, that any observations calculated to throw light on its nature and treatment cannot but be read with interest. The following extracts, therefore, from an account of the scarlet fever as it prevailed in Edinburgh, by Dr. James Stark, will, therefore, we are sure, be acceptable to our readers.

"The autumn of 1835 set in with cold rainy weather, which continued with few intercessions the greater part of that period. In the latter part of the summer months and beginning of the autumnal, diarrhœas and dysentery prevailed to a great extent, and many fatal cases occurred, as well amongst children as adults. Sore throats and *scarlatina* succeeded these complaints. The first cases I witnessed occurred about the latter end of September. It was not confined to any particular district of the town, nor to any particular rank of life, though generally speaking, it raged with the greatest violence in those close confined situations, where numbers are crowded together in small apartments, in which, from the want of ventilation, and other means to prevent its extension from one member of the family to another, all the younger individuals were usually attacked with the disease. In some instances the elder members of the family were also affected.

"In the same family the duration and also the severity of the disease varied much. The three forms of the disease, *scarlatina simplex, scarlatina anginosa* and *scarlatina maligna*, have in many cases been witnessed in as many members of one family. Whilst one has had the disease so mild as scarcely to confine the patient to bed, another has died of the disease on the third or fourth day of attack,—or has only made a lingering recovery, after life had been almost despaired of.

"During the prevalence of scarlet fever amongst children, a similar affection of the throat prevailed to a considerable extent amongst adults. In many cases this appeared in the adult members of the same family, during, or immediately subsequent, to its prevalence amongst the younger branches. In many cases, however, no such connexion could be traced. Isolated instances of the same affection occurred in individuals who had no communication with others labouring under a similar disease, or with *scarlatina;* but in none of the instances of the latter class was the disease communicated to others with whom they had intercourse, though the symptoms differed in no respect from those which happened in *scarlatina* itself.

In all these, the affection of the throat was precisely similar to that which occurs in the *Scarlatina anginosa*. Frequently it was attended with slight febrile symptoms; though more frequently the sole complaint was difficulty of swallowing and pain in the throat. The tongue, however, in all cases, manifested the same peculiar and characteristic fur, with the elevated red elongated *papillæ* projecting through it, and frequently with the red stripe along its margins. The *fauces* and tonsils were generally highly inflamed, with more or less swelling, which had a great tendency to run on to ulceration, but in no case ended in the formation of abscesses. In several cases, there was a troublesome collection of mucus in the posterior *fauces* and windpipe. The difficulty of swallowing was usually great, from the pain caused by the stretching of the inflamed parts, more than from actual closure of the aperture of the posterior *fauces* from swelling, for this was in general not very considerable. In all those cases which seem to have resulted from the contagion of *scarlatina*, the stomach was in a more or less irritable state; and in a few cases this condition remained for a considerable time after recovery from all affection of the throat. They presented, indeed, all the usual appearance of convalescents from a febrile disease. In others, however, the affection of the throat was so entirely local, that, excepting the difficulty experienced in swallowing food for a few days, no other inconvenience resulted. In the same order of cases, the appetite and pulse generally remained unaffected throughout. In one case which fell under my notice, the affection was chiefly confined to the *uvula*, which rapidly swelled to such an extent as to excite serious apprehensions of suffocation. Its surface presented a few ulcerated specks, and the tongue had the peculiar elongated red papillæ, with a red stripe down each side. The glands of the neck were also slightly affected. Scarification and repeated applications of the solution of nitrate of silver, with antimonials, &c. removed the complaint. This person had been exposed to the contagion of scarlet fever.

"In another remarkable instance, one side of the throat alone was affected. In this case there was no fever, but general irritability. Notwithstanding appropriate treatment, ulceration proceeded to a considerable extent, confined, however, to the right side. The swelling was inconsiderable, but there was acute pain in swallowing, and some swelling of glands on that side of the neck. What was most remarkable in this case was, that the *right side* of the tongue from the mesial line was alone affected. The right half of the tongue was covered with a whitish coloured fur, through which appeared elongated papillæ, and a dark red stripe ran along its right margin; the left side of the tongue remained throughout of its usual healthy aspect. The obstinacy of the ulceration in this case depended on the circumstance, that, as the patient's health remained unaffected, and his appetite was to a considerable extent unimpaired, he could not be prevailed on at first to confine himself to the house, or take any medicines internally. It soon healed, however, when he submitted to confinement and low diet, with the use of aperient medicines. This person had likewise been exposed to the contagion of *scarlatina*.

"These affections of the throat seemed to be intimately connected with the peculiar unknown atmospherical state which favours the epidemical ravages of *scarlatina*, and in many cases, as above mentioned, appeared to have been received from the contagion of *scarlatina* itself.

"I met with six cases of a similar affection in children; but in all of them it was apparent that this affection was only a modification of the true *scarlatina*, inasmuch as they occurred in families, the other members of which were labouring under that disease. The febrile symptoms were equally severe, though not followed or accompanied by any efflorescence; and a still stronger proof that this was merely a modification of scarlet fever was observed at a later period of the disease. After convalescence was established, œdematous swellings supervened in three of these cases, and in a fourth, the urine was entirely suppressed, with rapidly increasing œdema, coma, and death in forty-eight hours, after the child was first observed to complain.

"Dr. Willan has stated, that whilst *scarlatina* rages epidemically, this peculiar affection of the throat frequently appears, but is confined to adults; and the same observation has been made by other writers on this disease. In the six cases noticed by me, there was no reason to doubt that it was merely a variety of the

true *scarlatina.* None of the internal organs appeared to suffer more than usual, from the want of the efflorescence on the skin, though certainly a far greater proportion were afterwards attacked with œdematous swellings. These cases were all observed during the latter end of autumn, at which time the œdematous sequelæ were much more common than afterwards. While the epidemic prevailed during the period above mentioned, all the varied forms of this disease were observed. Perhaps the most common order of cases was the *simplex*, or the mildest form of the anginose variety; in rare cases proceeding to ulceration, and this merely where the requisite attention to the throat had been neglected in the first instance. When seen early, such cases easily and quickly recovered. In these the febrile symptoms were rarely so intense as to require blood-letting; and they were in general successfully relieved by means of moderate purging, and tepid sponging of the surface, with an astringent gargle for the throat, if required. The best application for the throat, when the inflammation was at all severe, was the nitrate of silver in the solid state, rubbed over the affected parts, or its solution. Where there was merely inflammation, with some slight swelling, I found powdered alum equally effectual, and not less easy of application. This remedy possesses the peculiar advantage, that it leaves a pleasant coolness in the mouth, with a far from disagreeable feeling or taste; a matter of no small importance with children, who are but too apt to refuse all medicines from their nauseous taste. The application of powdered alum, indeed, is frequently solicited by the child, after it has felt the relief obtained by the first application; and the only inconvenience arises when too great a quantity is applied, from its being carried down to the stomach, and causing unpleasant symptoms. The mode of application is in itself simple. The point of the forefinger, a camel's hair pencil or feather, slightly moistened, is dipped in the powder, and applied directly to the affected parts. This may be repeated as often as is necessary. I have rarely in the case of children directed the use of gargles, as, besides the difficulty of the application, they but imperfectly reach the parts affected; and in more severe cases, from the attendant swelling of the glands of the neck, the head cannot be thrown so far back as to insure the application to the parts affected.

"The anginose variety of this disease in its severer forms was far from unfrequent. In such cases the attack was more sudden, and the fever frequently ran high. In several cases I have even seen delirium. The posterior fauces had a dark red appearance, and white specks soon appeared, and rapidly proceeded to ulceration. The swelling was often very considerable, and the pain great. Troublesome collections of mucus took place in the posterior *fauces* and windpipe, which caused great annoyance, and in several instances a bronchitic affection attended the disease. The efflorescence was in several very severe cases confined to the neck and breast; in others the efflorescence appeared over the whole body, and never failed to alleviate considerably all the symptoms. I only met with three cases where there was a distinct papular eruption accompanying it, very perceptible both to the sight and touch.

"When such cases where seen early, during the febrile stage preceding the eruption, or immediately on its appearance, the most successful practice was found to be abstraction of blood from the arm, carried so far as to relax the system; a practice to which my attention was first directed by a paper in the 41th vol. of Ed. Med. and Surg. Journal, by Dr. Dewar, of Dunfermline. [See this Journal for November, 1835, p. 227.] This, if had recourse to at the proper period, rarely failed to render it a mild and tractable disease. The inflammation of the throat rapidly abated, and if any specks existed, they gave no more trouble, after being touched with nitrate of silver. All that was otherwise required was to regulate the bowels and keep the patient cool.

"When this practice was not had recourse to, or where the disease had gone on for some days before being seen, the ulcerations of the throat were often very troublesome, and the glands of the neck in the vicinity frequently swelled to a considerable extent. These causes tended to keep up the febrile action; and it was occasionally found impossible to get any medicines to act upon the bowels. In such cases a few leeches to the throat, or a small general bleeding (for it was not judged safe at this period of the disease to abstract a large quantity of blood) facilitated the action of the medicines, and reduced the febrile heat more effectually than cold sponging or any other means. In many such cases, however, it

was necessary, in addition, to exhibit occasional emetics, in order to remove the accumulations of mucus in the posterior fauces and windpipe. The stomach appeared to be frequently in such a torpid state, that the ordinary ipecacuan emetic did not act, and to insure its operation more effectually a few grains of sulphate of zinc were added. During the whole course of the disease the bowels required the most unremitting attention. Purgative medicines required daily to be administered; and as in many cases during the severity of the symptoms ordinary doses failed to have the slightest effect, a combination of purgatives was required to be administered at intervals, till the desired effect was produced. Cold or tepid sponging was of the highest utility, as long as there were any febrile symptoms present, or any increased heat of surface, with quick pulse and general restlessness. The throat in these cases required to be daily inspected; and what proved the best application to the ulceration was a solution of nitrate of silver applied daily by means of a camel's hair pencil, or the solid nitrate rubbed over the ulcerated surface.

"I have twice through the imprudence of parents nearly lost children by their administering spirits, or other stimulants, with the view of bringing out or keeping out the efflorescence, and heaping on clothes for fear of cold. The bad effects were in both cases arrested by blood-letting, cold sponging, removing the unnecessary clothes, and giving free laxatives, with antimonials.

"Very few cases of the malignant form came under my notice. In those which I witnessed, the invasion of the disease was sudden, accompanied with much irritability of the stomach, incessant retching and vomiting, with great and sudden prostration of strength. Where the symptoms were not moderated at the outset of the disease, delirium and stupor rapidly supervened; the petechiæ and *vibices* were large and numerous; the efflorescence of a dark purple hue, confined chiefly to the trunk of the body; and in one case the impressions of the fingers were followed by a bloody stain, as occurs in *purpura hemorrhagica*. In all cases, the throat proceeded rapidly to ulceration, and sloughing of a very intractable nature; the glands of the neck soon became affected; sordes were deposited on the teeth; and fetid purulent mucus distilled from the nostrils. The pulse, which from the beginning had a peculiar compressibility, became imperceptible at the wrist, and in one case death took place on the sixth day of the disease. Those who did recover required the greatest care and attention, and were long in regaining their usual strength and vigour.

In one of the first cases of this malignant form, I tried the effect of blood-letting before the pulse had become much enfeebled; though even from the beginning of the affection there is a peculiar compressibility of pulse by which this form may be recognised before any other symptom appears. In this case the violent retching and vomiting, and acute pain of the head previously complained of, were much abated, and all the subsequent symptoms proved much milder. The eruption which, previous to the blood-letting, was confined to the upper part of the trunk and neck, now appeared generally over the body, but of the characteristic dark livid or purple hue, with some *petechiæ* and *vibices*. The head was kept cool by wet cloths; the ulcers on the throat were daily touched with nitrate of silver; the mouth frequently syringed with a solution of alum in vinegar and water; and the bowels kept open by means of injections. The strength was supported with wine; but it was three weeks before the patient could be said to be out of danger. Recovery was in this case retarded somewhat by a slight dysenteric attack at the end of the fourth week; but after this the patient rapidly improved.

"The success of the blood-letting in this case led me to adopt the practice in similar cases; and where it was had recourse to at a sufficiently early period of the disease, I found that the subsequent symptoms proved much milder, and the chances of recovery were greater, than when this had been omitted. The cases in which I did not see the patient till too late for such depletion, generally proved the most intractable. In several of them where leeches had been ordered to the head, from the evidently congested state of the vessels in that region, I have seen the leeches drop off dead almost as soon as they had pierced the skin.

The success of the above treatment was such, that out of seventy-six cases of scarlet fever only two died. The one, a case of the malignant form, terminated fatally on the sixth day of the disease; the other, of the anginose variety, with

acute general *bronchitis*, on the third day. No inspection was allowed in either case.

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23. *On Dropsical Affections, the Sequelæ of Scarlatina.*—By James Stark, M. D. Scarlatina is one of those diseases which require the most careful treatment during convalescence. In many cases the *sequelæ* of this disease are more formidable and alarming than the disease itself. There appears to be no form of scarlatina, excepting perhaps the malignant, that may not be followed by those dangerous anasarcous swellings, which have been but too common in the late epidemic scarlet fever which has visited this city. Those who had passed through the disease mildly appeared to be even more liable to attacks of this kind than those attacked with the disease in a severer form. But in this respect every variety was observed.

These dropsical affections were much more frequent during the months of October, November, December, and beginning of January, than afterwards. In the most severe cases the swelling came on suddenly, without any previous complaint, generally from a fortnight to three weeks after the disappearance of the eruption. The little patient, (for I have never witnessed a case above the age of puberty,) was often put to bed apparently quite well, and it was frequently not till the middle of the night, or next morning, that the friends were alarmed by the sudden swelling of the body of the child, attended with great difficulty of breathing, moaning, restlessness, and in some cases, stupor. In one very severe case, the child, of six years of age, had been put to bed quite well about 10 o'clock, and, when the mother went to see if her children were all quiet before retiring to her own apartment, she was alarmed to find this child swollen all over, with the eyes fixed, the extremities cold, and with stertorous breathing. The child was perfectly insensible, and the pupils did not contract on the approach of a lighted candle. Twelve ounces of blood were drawn from the arm, which at first fell drop by drop, but afterwards came away in a full stream; a stimulant clyster was administered; heat applied to the surface of the body; and by next morning the child was so far recovered as to sit up in bed.

In all cases of this dropsical affection in which the urine was examined, it was found coagulable by heat. In many of the severer cases, the urine passed before the accession of the dropsy was very turbid, dark-coloured, in a few cases bloody, and in all highly coagulable. In two cases it was entirely suppressed.

In the severe cases, the œdema extended over the whole surface of the body, being usually observed first about the face, but rapidly spreading to other parts of the body. The fluid was not confined to the cellular tissue alone, for its presence was frequently noticed both in the cavity of the abdomen and chest; and from the stupor, drowsiness, and stertorous breathing, with fixture of pupil, I have been led in a few cases to infer its presence likewise in the ventricles of the brain. In some cases the abdomen was remarkably tender, and the patient lay in the same sunk supine situation as in peritonitis; in others the abdomen was free from tenderness, but preternatural fulness and tenderness was remarked in the lumbar regions.

Occasionally the swellings were confined to particular regions of the body. In some slight cases the face alone was affected; in others the extremities; but these were usually the mildest cases; yet even in these the urine was found more or less coagulated by heat.

I have every reason to believe, that cold applied to the surface of the body in some way or other was the immediate cause of the dropsical symptoms which follow *scarlatina*. In several of the severer cases, the attack was ascertained to have followed exposure to cold; but in others such a connexion could not be traced. The cutaneous vessels are well known in this disease to take on an excited action, to repair the loss of the cuticle, which is usually thrown off after the febrile symptoms have subsided. An increased vascular action, and more particularly of the cutaneous system, is consequently observed during the time this process is going on. The pulse is generally somewhat quicker, and the appetite frequently almost ravenous; whilst the surface of the body is usually hotter than in health, though not to such an extent as to excite unpleasant feelings in the patient. But notwithstanding this increased circulation in the cutaneous vessels, (the general system being in a weakened state on account of the previous illness,

and the vessels not having recovered their usual tone,) the surface of the body is easily chilled, particularly if exposed for any length of time; the blood circuculating there is thus thrown upon the internal organs in unusual quantity, and those, whose action is vicarious with that of the skin, are generally found to suffer most. The kidney is therefore the organ first to suffer. If the application of cold to the surface of the body is only moderate, its action is merely increased; but if the cold has been applied for a longer period of time, and the secretion from the cutaneous surface is materially diminished, from too great action being excited in the kidney, in its weakened state, its action becomes disordered, and disease is the result. That such is actually the case, several recorded dissections of persons who have died from this disease have proved; and the success of the practice, which I was led to adopt, fully justified me in the views I had taken of its nature and origin.

In all cases, excepting in the very mildest, I bled to a greater or less extent in proportion to the severity of the symptoms, and the relief experienced from it. Wherever it was practicable, or the parents would allow it, blood-letting from a vein in the arm was preferred, because the symptoms were much sooner relieved by such a practice, and more effectually, than when leeches were applied to the loins or other parts of the body. When, however, this was impracticable, or where the child was under two years of age, leeches were used, but always in such numbers as to cut short the disease as soon as possible, and not trust to the removal of the requisite quantity of blood by subsequent fomentations; though these were also occasionally employed. In all the severe cases, the safest and most certain mode of relieving all the urgent symptoms, was to carry the blood-letting to such an extent as to produce a marked action on the pulse. With regard to the quantity of blood drawn, I have frequently bled to the extent of twelve ounces, and in one severe case no less than eighteen ounces were withdrawn with the most manifest advantage. I usually followed the bleeding by small doses of antimonial wine, with the *liquor acetatis ammoniæ*, and where the urine had been entirely suppressed, a large hot bran poultice applied to the lumbar region. In the milder cases, brisk purging, with antimonials, and the *liquor acetatis ammoniæ* with the warm bath, relieved all the symptoms. In all cases the warm bath was of the utmost advantage.

Of fifteen cases in which dropsical *sequelæ* occurred, only *one* died. This was a boy 5½ years of age, in whom the parents would not allow bleeding, either from the arm, or by leeches to the lumbar region. Solution of tartar emetic with the *liquor acetatis ammoniæ*, purgatives of jalap and calomel, the warm bath, and a bran poultice to the lumbar region, were all applied in vain; for delirium followed by coma rapidly supervened, and he died forty-eight hours after being first noticed to complain. He had had a very mild attack of the scarlet fever without efflorescence three weeks before, had been chilled from exposure for some hours to a cold frosty wind on the 14th of November, and died on the evening of the 16th. No inspection was allowed.

The blood when drawn from the arm in these cases usually presented a small proportion of *crassamentum* to serum; was more or less buffed, and occasionally cupped. In two cases, which had followed rather severe attacks of the anginose variety, where the peculiar papular appearance of the eruption was distinctly marked, the serum was milky, and when treated with ether gave a considerable quantity of fatty or oleaginous matter.—*Ibid.*

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24. *On a troublesome purulent discharge from the internal ear, a sequela of scarlatina.* By J. Stark, M. D.—This affection was remarked to be more liable to come on in children of a scrofulous habit of body, and in the anginose variety of scarlatina. In general it began with slight deafness in one or both ears, a few days after the child first began to complain, and whilst the efflorescence was still visible. It was chiefly observed in that form where the affection of the throat was one of the most prominent symptoms of the disease, and appeared to be caused by the inflammation extending along the Eustachian tube to the internal ear. If noticed early, whilst in this stage, a few leeches behind and around the ear, and a large emollient poultice applied externally, with strict attention to the throat and the due evacuation of the bowels, prevented all unpleasant symptoms, and it rarely went further; but where only one ear was affected, and the patient so young as not to be

able to give a distinct account of his feelings, it was apt to be overlooked, till the *membrana tympani* had given way, and a quantity of purulent matter was discharged. Even then the greatest advantage was derived from the application of leeches, followed by emollient poultices, frequent syringing of the ear with tepid milk and water, and attention to the general system. Under such treatment the discharge ceased, and the hearing was restored. Where the discharge threatened to continue, under the use of a blister behind the ear it usually ceased. In all the cases which terminated thus favourably I afterwards found the membrane of the *tympanum* cicatrized.

One case, however, did not terminate thus favourably, and, as I had afterwards an opportunity of examining the diseased parts, I shall give an account of it.

A. W. aged 7, was attacked on the 20th of November 1835, with scarlatina; on the 23d the efflorescence had suddenly receded, and I was called to see him. His pulse was 130, sharp; the breathing was hurried, with short distressing cough and subcrepitous rattle; the face was flushed, and the eyes were intolerant of light; the abdomen tender to the touch; and he was lying on his back, sunk in bed, and his legs drawn up. He was bled to about twelve ounces, which caused slight faintness; a sinapism was applied over the abdomen; a purgative clyster administered; and when the sinapism was removed, as tenderness still continued, a bran poultice was applied. After this the efflorescence reappeared over the body, though not very bright, and continued out for a few days, when it was followed by desquamation. The fauces were slightly ulcerated, but rapidly healed under the use of nitrate of silver. On the 28th he complained of slight deafness. To remedy this, a few leeches were applied round the ear, followed by an emollient poultice. A slight discharge of purulent matter, however, appeared a few days after this, from the right ear, but gradually abated under the use of tepid injections.

I had ceased attending for upwards of a fortnight, when, on the 17th of December, I was requested to see the child. The ear was again discharging, and the glands on the right side of the neck were considerably swollen. The pulse was irregular, 90 in the minute, and weak; the bowels were constipated; the skin moist; and the child very weak, but no febrile symptoms were recognised. Bitters in very small quantities, with gentle laxatives, and a slightly stimulant wash, consisting of one grain of sulphate of zinc to one ounce water, were employed. Under this treatment he recovered his appetite, and by the 24th December the swelling of the glands of the neck was most entirely gone.

On the 25th December, a change for the worse had taken place. The child was restless, and tossing about in bed. The heat of the surface was much increased, and pain of the head was complained of. The discharge from the ear had ceased. A dose of calomel and jalap was administered; a few leeches were applied round the ear, and he was bathed in the evening. These measures reduced the heat of the surface, the pulse became nearly natural, and he fell asleep.

About three o'clock on the morning of the 26th, I was called to see the child, as he had been attacked by a severe shivering fit, with acute pain in the head. The pulse had risen to 130, was sharp, and rather hard. The eyes were rolling wildly; the pupils were contracted, and the countenance was anxious. Though the surface of the trunk was hot, yet the extremities were cold, and the child complained of cold. The respiration was hurried, but there was no unnatural rattle. There was acute pain in the head; and the rigor was so severe as to shake the bed on which he lay.

Blood was drawn from the arm to faintness, the head was shaved, and cold cloths were applied. The bowels were freely moved by calomel and jalap, and small doses of antimonial wine were ordered. Soon after this he fell into a quiet sleep; which lasted for eight hours.

On the 28th, the pulse had fallen to 100, and was soft. The eye was lively, and the pupil contracted freely.

On the 29th, he had a slight rigor, when a few leeches were applied to the temples, and cold cloths to the head.

On the 30th and 31st, he had several slight rigors. The pulse was weak; there was a fetid discharge from the right ear, with occasionally a few clots of blood. The purgatives, antimonials, and cold to the head were continued.

Jan. 1st, 1836. A copious discharge of bloody fetid purulent matter took place from the right ear. The pupils were contracted; the pulse 100, very weak; the bowels were open; and the surface was cool; but he had passed a restless night.

At midnight I was again called, as immediate death was apprehended from profuse hæmorrhage. The blood I found flowing from the right ear, right nostril, and mouth; and it was occasionally brought up from the stomach by vomiting. This had, however, evidently been swallowed,—one clot having the form of the gullet, as if it had coagulated there. The blood thus discharged was mixed with shreds of lymph and purulent matter. It was dark, and evidently flowed from the internal ear, having found an exit both by the external ear, and downwards by the Eustachian tube. He lost at this time from six to eight ounces, but the quantity could not be accurately ascertained. By this hæmorrhage the pulse was rendered very weak and compressible. The temporal arteries, however, were beating strongly, and the head was hot to the touch, though the rest of the body was cool and moist. The child soon afterwards fell asleep, and slept till noon of the 2nd. The bleeding recurred at intervals during the night of the 2nd, and he died early on the morning of the 3d.

The body was inspected in the presence of Drs. Craigie and Home, thirty-six hours after death. It had an exsanguine blanched appearance. The muscles of the head and neck were bloodless, as were also the vessels which were divided. The scull-cap was in some points as thin as paper. The brain presented an unusual fulness, bulging upwards and over the edge of the skull in a remarkable degree. No unusual vascularity was observed on its surface. A considerable quantity of fluid was found effused beneath the membranes, over the whole surface of the brain. The substance of the brain itself was much softer than natural, and was *distinctly œdematous*. The ventricles were much softened, and distended with a clear serous fluid.

When removed from the skull, and placed with the base upwards, it was observed that the lower portion of the posterior lobe of the right hemisphere of the *cerebrum* was unusally vascular, and much firmer than the rest of the brain. The upper posterior portion of the right hemisphere of the *cerebellum* presented the same appearance. The cineritious parts of the brain at these affected portions had a very peculiar greenish hue, and exhaled a strong gangrenous odour. The white substance of these parts was little altered in colour. The brain round these firmer portions was preternaturally soft, almost pultaceous.

Upon inspecting the base of the skull in contact with those altered portions of the brain, that is, the situation of the right lateral sinus, unusual vascularity and thickening of the *dura mater*, with effusion of lymph, were found, extending from the *Torcular* along the whole lateral sinus of the right side. These parts were also considerably discoloured, and exhaled a gangrenous odour. On slitting open the lateral sinus, its coats were found much thickened, with interstitial deposits of recent lymph. The internal coat of the sinus was covered with an irregular recent deposit of lymph, was much softened in its texture, and easily scratched off. A quantity of bloody purulent matter filled the sinus. The alteration of texture did not extend further back than the *Torcular Herophili*, at which point the sinus was blocked up by a firm *coagulum*.

Where the lateral sinus passes through the *foramen lacerum*, the same disorganization was observed; a greater quantity of lymph had, however, been thrown out here. Similar morbid appearances extended about three inches down the internal jugular vein, where they stopped abruptly, the diameter of the canal being there closed by another adherent *coagulum*.

The internal ear was completely destroyed, the whole parts being in a state of ulceration and suppuration; the walls, however, were not carious. No opening into the jugular vein could be detected which could account for the bleeding; so that there seems every reason to believe, that it must have resembled those hæmorrhages which are observed from other mucous surfaces in states of disease. The bones of the ear had been previously discharged. The membrane of the tympanum was completely destroyed. The Eustachian tube was highly inflamed, but pervious.—*Ibid.*

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25. *On a peculiar rheumatic affection of the joints succeeding the disappearance of the efflorescence of scarlet fever.* Dr. James Stark met during the prevalence of the epidemic scarlet fever at Edinburgh, described in a preceding article, with

a peculiar rheumatic affection of the joints succeeding the disappearance of the efflorescence. Dr. Alexander Murray of Alford, Aberdeenshire,* has recorded the occurrence of a similar affection during an epidemic scarlet fever which prevailed at that place in 1819–20; Dr. Cock has detailed cases of a rheumatic variety of scarlet fever, as observed by him in the island of St. Bartholomew in 1829–30;† and Dr. Craigie, in the Edinburgh Med. and Surg. Journal, for June last, has narrated instances of this complication of scarlet fever. The cases which Dr. S. met with occurred chiefly in the earlier part of the winter; and as this form of the disease has been generally overlooked, the following brief narration by Dr. S. of the heads of two of the most severe cases will be interesting.

"1. Mary Kennedy, aged 7, was seized on the 5th of October, 1835, with the usual symptoms of scarlet fever; the efflorescence was fully out over the whole body; the febrile symptoms were moderate; and the throat was slightly affected. On the 10th, whilst the eruption was still visible but fading, she began to complain of pain in the right wrist and hand, which were considerably swollen, with a vivid redness on the surface, and tender to the touch. The local heat was increased, and there was also slight increase of the febrile symptoms. The redness was of a general diffuse blush, similar to that observed in some cases of severe rheumatic affections of the joints, or in gout. The little sufferer was unable to move the hand or fingers, and screamed whenever the parts were touched.

On the 11th, the left foot was similarly affected;—the foot and toes being red, swollen, hot, and extremely tender to the touch, or on the slightest motion. No change had taken place in the right hand and fingers.

On the 12th, the pain in the foot was less severe, but the knee was just commencing to be similarly affected; the efflorescence on all parts of the body had disappeared, and desquamation had commenced, so that the redness peculiar to this complaint was easily observed.

Little change took place till the 16th, by which time the pain in the wrist had abated; as had also that in the foot and knee, but a degree of swelling still remained, rendering them stiff. On the 18th, the swelling was so far gone that she could use the affected parts freely, though it was perceptible for a few days longer.

During the whole course of this affection, the pulse had remained quick, being always above 100. The urine was slightly turbid, but not coagulable by heat.

2. Euphemia Kidd, aged 8, was attacked with scarlet fever on the 12th December, 1835. The efflorescence was copious and of the usual appearance; and the throat was slightly affected.

On the 18th, she first complained of pain in the left wrist and fingers, increased by the gentlest touch, or on the slightest motion. An erythematous redness extended over the fingers, hand, and half-way up the fore-arm, all which parts were much swollen and preternaturally hot. The pulse had risen to 120, and there was an increase of febrile heat.

Little amendment took place till the 22nd, when the affection suddenly left the left-hand and wrist, and attacked in a similar manner the right-hand, wrist and fingers. The pulse, which had fallen to below 100, now again rose to 120.

The parts had nearly regained their usual appearance by the 30th, some slight swelling and redness alone remained, and the pain was gone.

On the evening of the 31st, I was sent for in great haste, as the patient was seized with symptoms threatening instant dissolution. I found her sitting up in bed, with a short, dry, incessant, distressing cough, and gasping for breath. The breathing was quick and short, and much heaving of the chest; the action of the heart was tumultuous and diffuse, but without unusual *bruit*. The pulse was 130, intermittent, and scarcely perceptible at the wrist; at the humeral artery it was oppressed, small, but hard. There was great pain and feeling of oppression complained of in the region of the heart. The percussion was there dull over a much greater extent of the chest than natural, and the impulse of the heart indistinct. A dry sibilous wheeze was heard over both sides of the chest, which were, however, pretty natural on percussion. The face and lips were livid, and, together with the extremities, much swollen.

On inquiry I learnt that the patient had felt so well as to be able to sit up and

* Edin. Med. and Surg. Journ. Vol. xvii. 342. † Ibid. Vol. xxxviii. 23.

take tea with the family; that she had then gone to bed, and half an hour afterwards was suddenly seized with the symptoms above enumerated.

I instantly bled her to fainting, and upon measuring the quantity of blood drawn, eighteen ounces were found to have been abstracted. This large bleeding gave almost instant relief to the pain, but she was still unable to resume the recumbent posture; the cough too was somewhat relieved, but still recurred every five minutes. The pulse, however, fell to 100, and became more regular and soft. A few doses of calomel and opium were given, and at midnight she fell asleep with the head tolerably low. The blood had coagulated firmly; the crassamentum was cupped, but had not much of the buffy coat, and was floating in a very large proportion of serum. The serum of the blood first drawn was slightly milky; in the other cups it presented the usual appearance.

On the 1st January, 1836, the swelling and lividity of the face had disappeared; the pulse was 100, soft; the cough much abated, with clear mucous expectoration; the feeling of oppression at the region of the heart was gone, and the dulness on percussion in that region less considerable; nor was there any unusual *bruit*. She could then lie with the head low on the left side, but not on the right, as it excited the cough. She had a draught of salts and senna, and a few more doses of calomel and opium.

From this period she rapidly recovered; on the 4th her appetite returned; and on the 7th she was able to be out of bed, though very weak.

This was the most severe case of the affection I met with. Other cases came under my notice where the affection was most commonly confined to the hand and wrist, or to the foot.

The treatment found to be most successful in all these cases was the local application of warmth by means of flannels wrung out of hot water, or camomile fomentations; and diaphoretics, with mild purgatives, to reduce the febrile heat.

The urine, in all the cases where it was examined, was not coagulable by heat.

While investigating the probable causes of this affection appearing in some children and not in others, one circumstance was observed, which may tend to throw some light upon the subject. It was found that one or other of the parents of the children who were thus affected were subject to rheumatic attacks. For instance, the mother of the first case above related has had two attacks of acute inflammatory rheumatism during the last year, which presented in many respects the same general character as that noticed in her daughter, whilst under the rheumatic affection attendant on the scarlatina; and the grandmother of the same child has been bed-ridden for five years with the same complaint.

The father of the second case above related is subject to rheumatism, and had one attack, which confined him for some time last spring.

In four other cases which came under my notice the same connexion was traced.

Whether these facts may in any way explain the occurrence of a rheumatic affection in children while labouring under an exanthematous disease, I do not pretend to say; but they appear to afford an easy mode of explaining why some children suffer from such an affection and others not, though I believe it has not yet been proved that rheumatism is one of those diseases which are hereditary.—*Ibid.*

MATERIA MEDICA.

26. *On the properties and mode of action of Cantharides, and Cantharidin.* The *Antologia Medica* for June, 1836, contains an interesting memoir on this subject, by Dr. Domenico Nardo, of Venice. The following are the results of his experiments as given in the *B. and F. Quarterly Review*.

1. Cantharides, when chewed, have not that acrid taste which has been assigned to them, solely from analogy.
2. They will act in an entire state or in powder.
3. The green portion is the only active part of the fly.
4. In this green portion alone is found the *cantharidin*.
5. There is no other poisonous principle existing in the fly.

6. The green principle is analogous to that found in the involucra of other insects having no vesicating powers.

7. The other principles, as the black and yellow substances, are produced by other insects, and are modified by the process followed in their extraction.

8. Cantharidin is a neutral body, unchanged by acids or alkalies; soluble in cold æther, creosote, oils and fats, and in boiling nitric acid and alcohol.

9. It has neither smell nor taste; but, if a small quantity be laid upon the tongue and pressed against the palate, it produces after a time a scalding sensation. The thing occurs if it be dissolved in æther or oil, which, by aiding its absorption, increases its powers.

10. A very minute quantity of cantharidin is sufficient to excite vesication; for its farther action is arrested the moment that the elevation of the epidermis by the serum removes the absorbents from their contact with it. The vesication, therefore, is not increased either by a larger quantity or longer application of the cantharidin.

11. Cantharidin does not vesicate by irritating or producing any sensible inflammation; (?) its action upon the cutaneous system appears to be limited to the lymphatics, or to a slight stimulus confined to the cutaneous layer below the epidermis; so that the nervous and sanguiferous systems do not suffer at all during the process of vesication. (?)

12, 13, 14. Cantharidin applied to the denuded cutis induces a serous exudation, followed by an atonic suppuration; and acts in the same way that it does on the outer surface; its action is most speedy and painful upon parts most supplied with sebaceous and mucous follicles.

15, 16. Cantharidin is not decomposed when absorbed; and its absorption ceases as the vascular action of the cutis is excited.

17-20. Being carried through the system in an undecomposed state, the cantharidin is eliminated like other foreign matter; but, if the quantity be great, it accumulates in certain parts, and produces its effects according to the nature and susceptibility of the organ. Its stimulating effects upon the urinary passages, and its boasted aphrodisiac powers, are not peculiar properties, but result from the effects of its primary action. Thus, carried along with the urine, it attacks the prostate follicles, producing a state approaching to vesication; and the urine, by increasing this irritation, produces the symptoms of priapism, ischuria, &c. Its poisonous action upon the alimentary canal is produced in an analogous manner, but gives rise to more extensive sympathies.

21. Camphor has no power as an antidote to cantharides.

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27. *Experiments on the action of Cantharides on the animal œconomy in health and disease.* Dr. Tommaso Pullino, of Alba, in Italy, has made some experiments with cantharides and cantharidin on the lower aninals and man, both in the healthy and diseased states. The following are the results of these experiments.

1. Two grains of cantharidin, given at once to a middle-sized rabbit, produced paralysis, coldness, and death in three hours.

2. A grain and a half dissolved in milk caused the same symptoms, and death in an hour and a half.

3. The same dose with m. xv. of cherry-laurel water caused instant death. The rabbit had five hours previously taken m. xx. without injury. Heart empty and flaccid, stomach pale.

4. A fourth rabbit took two grains in solution, with the same symptoms and convulsions of the hind legs. It then took a few drops of ammoniated æther, and one grain of acetate of morphine, at two doses. It revived, but was not lively, and died in twelve days. Stomach reddish here and there; meninges injected.

5. Two dogs of the same age and size, took, the one ten grains of cantharides in decoction; the other twelve grains in powder. The former was paralysed, and died; and, on examination, presented no inflammation of the stomach. The other tried to vomit, was distressed, writhed, and moaned. He was killed in six hours, when the poison was found undigested, and the stomach reddish.

6. Three more rabbits were killed with cantharidin, and two with cantharides. The stomachs of those that drank after taking the poison were uninjured, and the inflammation in those that did not drink was too slight to account for death.

7. The author took two grains of cantharidin at two doses, fasting, and felt a universal shivering and chill down the spine, skin pale, head oppressed, and in one minute the pulse fell five beats. Urine copious in a quarter of an hour afterwards.

8. A fortnight subsequently, he took two grains at four doses. After the second dose he felt a dull pain in the head, and at the next a little vertigo, the skin being cold and clammy. The pulse, after violent action, lost seven beats in a minute. Urine scalding and copious, although but little fluid had been drunk. In the afternoon he took some alcohol, and then ten drops of ammonia in water, when the vertigo ceased and the urine by midnight no longer scalded. Unusual weakness next day.

9. The following are notes of some cases of disease in which cantharides were exhibited:

(1.) *Pleuropneumony.* After two bleedings, the pain continued with bloody sputa of unhealthy consistence. Three grains of cantharides in solution, gradually increased to ten, were taken daily. Continued sweats, urine not increased; sputa healthy, pain gone in sixteen days; eighty-five grains taken.

(2.) *Carditis.* 112 grains taken in twenty days; urine scalding at first, very copious and turbid afterwards.

(3.) *Beating of arteries* of left side of head preventing sleep; had been treated by many bleedings. The patient took one grain of cantharadin in four doses at short intervals. Vomiting, pulse small, rapid, rigors, vertigo, torpor of lower extremities, and other signs of depression. Æther, opium, wine and generous diet, produced a cure.

(4.) *Intermittent fever* threatening suffocation. Bleeding during the paroxysm, and quinine, were followed by ardent and continued fever, dryness of skin, pains in loins, and ischuria. Fifteen grains of cantharidin taken in eight days at first increased the pain, but not the fever. At first, urine bloody, afterwards *bluish*, then turbid and abundant. Sweat came on soon afterwards, and a cure followed.

(5.) *Lumbago.* Cantharides rendered the pulse hard. The patient had had gastritis just before. Cantharides applied to the epigastrium denuded of the cuticle did not lower the pulse. Bloody urine, but no improvement.

(6.) *Phlegmasia dolens* in a girl with amenorrhœa. Cantharides cured the swelling, but did not restore the uterine functions.

(7.) *Puerperal metroperitonitis* with lumbar pains and dysuria, cured by cantharidin, baths, and mercurial frictions. Urine copious, with some clots of blood.

(8.) *Anasarca* with congestion of the spleen, of three years standing, cured by mercurial frictions and cantharidin, carried to six grains per diem. Urine copious, much viscid perspiration, very slow pulse. The patient fell into a very weak state, which was removed by the use of æther and sherry.—*British and Foreign Review*, from *Annali Universali di Med.* Sept. 1835.

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28. *New injection for the treatment of blenorrhagia and leucorrhœa.* An aromatic tincture of gall nuts is employed with success, in the treatment of the above named diseases, in the new hospital, in the rue de l'oursine. It is prepared in the following manner. R. Nux. Gallic. contus. lbj.; Aq. Puræ lbj. Macerate for 12 hours, and then decant the fluid; add to the residue another pint of water and after 12 hours maceration it is also to be decanted. Add to the liquor two pints of rectified alcohol and six ounces of the compound alcoolat of citron, and then filtre. This tincture diluted with from six to eight pints of water is used as an injection.—*Journ. de Pharm.* Sept. 1836.

SURGERY.

29. *Hypertrophy of the Tongue, with induration, cured by the Hydrochlorate of Gold.*—M. Bayle has successfully treated a case of hypertrophy of the tongue, with induration of the left side, by the use of the hydrochlorate of gold, (1-5 of a grain in milk; frictions on the tongue with lard 5ss., hydrochlorate of gold gr. j.; emollient gargles.) In a few days the tongue was reduced to its natural size, the induration was dissipated and the patient cured.—*Rev. Méd.* Jan. 1836.

30. *Dislocation of both Arms.*—In a late number of *Preussische Medicinische Zeitung*, there is recorded a case of a butcher who had both arms dislocated at the shoulder by the efforts of a hog to escape, which he was about to slaughter. The patient was an athletic man, and refused surgical aid until he should first try the following domestic measure. With the aid of the surgeon, who had been called, the patient slowly raised his arms until they were in a line parallel to his body; he then stepped upon a bench, and seizing with both hands a cross beam, he sprung from the bench; a noise was heard, and both humeri were replaced in their sockets. This case is interesting in connexion with the remarks on the subject of dislocations of the humerus, by Dr. Annan, in the original department of this number, page 376.

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31. *Dislocations.*—M. Malgaigne, in a memoir some time since presented to the Royal Academy of Medicine of Paris, establishes the principle that no dislocation can take place without rupture, either of the articular capsule, or the ligaments, or the fibrous, or muscular parts; and he attributes most of the recurrences of the accident, to the joint not having been kept sufficiently long in a state of complete immobility after the bones are replaced. We believe the importance of entire rest of the joint, for a considerable time after luxation, is not sufficiently appreciated; or at least, that the measure is not rigidly enough enforced.

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32. *Extirpation of a Goitre.*—The *Archives Gén. de Méd.* for January last, contains an account by Mr. Rufz of a case in which Professor Roux extirpated the thyroid gland of a young man, 22 years of age, affected with goitre for twelve years. The tumour did not produce any serious inconvenience to the patient, nevertheless, it was determined to extirpate it. The operation seemed to have succeeded; that is, it was not followed by any of the serious primary symptoms which accompany serious wounds, nevertheless, the patient died about fifty-six hours after the operation, after a short struggle. The post-mortem examination revealed no appreciable cause of death independent of the wound produced by the operation, except lobular pneumonia of the left lung.

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33. *Radical cure of Hernia.*—Professor Gerdy has succeeded in two cases in effecting a radical cure of hernia by the following method. Having reduced the hernia, he pushed a fold of the integuments up the canal so as to form a short cul de sac, like the finger of a glove, and then fixes the integuments in this position by several sutures, which attach the bottom of the cul de sac to the parietes of the herniary canal, and which by inducing inflammation, cause the two surfaces to adhere permanently together. Lastly, he excites inflammation on the outer surface of the invaginated fold of integuments, by daubing it with the liquor ammoniæ, so as to produce adhesion of its parietes to each other.

Mr. Gerdy has communicated this plan to the Royal Academy of Sciences—the committee to which it was referred, of which Baron Larrey was chairman, have reported unfavourably.

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34. *Chlorine Gas as an Injection for the Cure of Hydrocele.*—Dr. Deblois of Tournay, was in the habit of performing the radical cure of hydrocele by injecting chlorine gas instead of red wine. His premature death prevented him from making known the plan; but M. Decondé, who has seen its advantages, has described it. The chlorine gas is contained in a bladder, to which is fixed a pipe and stop-cock adapted to the canula of the trochar, into which it is fixed after the fluid has been evacuated: the stop-cock is then turned, and the bladder pressed so as to force the gas into the tunica vaginalis. When this is distended, the pipe and bladder are removed, and the thumb placed over the mouth of the trochar, so as to prevent the escape of the gas for the space of two minutes; it is then allowed to escape, and two or three repetitions of the injection are made, which are sufficient for the cure. The advantages are—the simplicity of the apparatus, and the whole sac being equally distended and exposed to the contact of the gas, which is not the case with fluid injections, which always gravitate. The danger also which sometimes occurs from the fluid being forced into the cellular tissue of the scrotum is avoided. M. Decondé proposes that the same remedy should be used

in the cure of other diseases characterized by the secretion of serum in various cysts.—*B. and F. Med. Rev.* from *Bulletin Méd. Bélge*, January, 1836.

35. *Congenital occlusion of the Vagina cured by a new method.*—The following very interesting case was recently communicated to the Institute by M. Amussat, one of the most active and able surgeons of the French Capital.

A girl fifteen years of age was brought from Germany to Paris for the purpose of consulting some of the leading surgeons there, MM. Boyer, Marjolin, Magendie and the narrator, for the relief of this distressing malformation. Her mother stated that she had enjoyed very good health until about two years ago, when she began to suffer severely from periodic attacks of pain in the abdomen and in the region of the kidneys. The first attack was on the 19th of June, 1831; it lasted for nine days. The second occurred five weeks afterwards and continued with occasional intervals of ease for nearly a month. During the following eight months, there was six attacks. At first they were attributed to an obstruction of the bowels; but it was soon discovered that this was not the cause, and on examination it was found that there was no trace of any vagina. The periodicity of the attacks was therefore attributed to the recurring efforts of nature to bring about the catamenial discharge. When she was brought to Paris in February 1832, the following was the state of the patient. The abdomen was enormously distended, so as to equal almost the size in the sixth month of pregnancy: at the lower part was distinctly felt a firm, resisting, globular tumour, which was supposed to be the enlarged uterus. The external parts of generation appeared to be perfectly normal, but on separating the labia there was no appearance of any vaginal orifice; the meatus urinarius was situated considerably lower down than usual, occupying nearly the centre of the fossette of the vulva, and the concave surface corresponding to the orifice of the vagina was smooth and lined with a mucous membrane. Some difficulty was found in passing a catheter into the bladder, for it was requisite to direct it very obliquely upwards. On introducing the finger into the rectum, the catheter was felt very distinctly in consequence of the great thinness of the intermediate parts; and higher up the finger met with a large rounded tumour, which occupied the hollow of the pelvis: this tumour was tense, fluctuating, and seemed to have very thin parietes. The nature of the case could not be mistaken: the urethra, bladder and rectum were glued together; and the vagina, at least in two thirds of its length, was entirely wanting. The uterus in consequence had become enormously distended by the retained menstrual secretion. The prognosis was certainly very unfavourable. MM. Magendie and Marjolin were of opinion that the only thing to be done was to tap the uterus from the rectum, and thus relieve it from its contents. M. Boyer regarded the case as hopeless, founding his opinion on the result of all similar cases on record, and more especially in consequence of some recent cases known to him and to M. Marjolin, where an eminent surgeon, in attempting to separate the agglutinated parts with the knife, had perforated the bladder, and had caused the speedy death of the patients. He therefore strongly recommended that nothing should be done.

M. Amussat, while he agreed with the late venerable surgeon of La Charite in condemning any attempts with the knife, was unwilling to abandon the case as irremediable. Two cases of imperforation of the vulva had recently occurred in his practice, where he had succeeded in re-establishing the vaginal passage by gradually tearing asunder the unnatural union between the urethra and the rectum with blunt instruments and with the fingers, and he thought that the same method was worthy of trial in the present instance. Having obtained the consent of the girl and her mother, he proceeded on the 29th of February to put it into practice. He used at first a large sized straight sound, and applying its rounded end to the fossette of the vulva immediately below the opening of the meatus urinarius, he pressed it with considerable force in the direction of the vagina, "comme pour faire un trou." He repeated this operation with the point of his finger, keeping all the while the fossette stretched by drawing the perineum strongly backwards, and the meatus urinarius upwards. Having continued the *boring* for some time he found that "il resta un trou, ou plutôt une impression profonde sans dechirure, ni effusion de sang." A small piece of prepared sponge was placed in the hollow (enfoncement) thus made, and it was retained in its

place by a bandage. Three days subsequently, the operation was repeated. M. Amussat used two fingers this time in making the pressure in the line of the vagina, and he employed such force as to occasion a slight laceration of the parts, and consequently some effusion of blood. "Ce decollement fut tres douloureux, mais profitable."

The dilitation thus obtained was prevented from contracting by the insertion of a piece of sponge. For the following three days, the same manœuvre was repeated, and with more and more effect, the two fingers being always introduced with the points of their nails close to each other and then gradually separated, so as to tear gently asunder the agglutinated canal. By having the catheter in the urethra and a finger in the rectum, the risk of wounding these parts was quite obviated. Already an inch and a half or nearly two inches of the canal had been gained, and the finger could then distinctly feel the distended uterus. For four days the patient was allowed to remain quiet without any thing more being done, and on the 9th of March M. Amussat perforated the distended tumour, with a small trocar, using his finger as a director. On withdrawing the stylet, only a few filaments of dark-coloured blood escaped through the canula. He had recourse therefore to a bistoury, which he conveyed along his finger, and which he cautiously plunged into the tumour, the walls of which were found to be extremely firm and resisting. Some dark, glutinous and thick blood, more like thick chocolate than any thing else, flowed out. The aperture made with the bistoury being small, he attempted to enlarge it with the point of the finger, but this was impracticable in consequence of the hardness of the tissues. He therefore again introduced the bistoury and enlarged the incision. Immediately a stream of glutinous blood escaped. The finger could now be passed into the cavity of the tumour, which was found to have a smooth surface; but the pain occasioned by this proceeding was so severe, that the patient could scarcely endure it. The finger being withdrawn, M. Amussat divided with the knife a few bridles which prevented the free dilatation of the incision, and immediately ten or twelve ounces of dark blood were discharged. The size of the abdomen was very sensibly diminished. An elastic gum canula was left in the orifice and made secure in its place by a bandage passed round the pelvis. The constitution suffered a good deal during the next twenty-four hours. An injection (we suppose of tepid water) had been twice practised into the cavity of the tumour, and had brought away a little glairy blood; nearly two pints in all had escaped since the operation. On the following two days the patient was extremely low and oppressed, and feverish symptoms, attended with vomiting, colicy pains and bilious diarrhœa came on. There was great prostration of all the vital powers; the pulse was rapid and feeble; there was an acute fixed pain in the left iliac fossa; the whole abdomen was tender and inflated, and there was a great tendency to stupor. M. Magendie being summoned in consultation, expressed great alarm for the result of the case. The employment, however, of leeches to the left groin, and of mercurial ointment rubbed over the whole abdomen, gave very decided relief. The patient, suffering much from tympanitic distension of the bowels, a long elastic canula was passed into the rectum high up, and gave exit to a large quantity of gas. On the 13th, the patient was somewhat easier, and the edges of the incised uterus were found to be suppurating freely. As the pain in the left groin returned towards evening, fifteen leeches were again applied; but the patient was so weak, that it was necessary to stop the bleeding from the bites. During the following week, the state of the patient did not improve much; there was always a distressed feverishness, and extreme languor and depression. A large canula was left occasionally for twelve or twenty-four hours in the vagina. On the 18th, there was a bilious diarrhœa, and with the motions a quantity of blood, altogether similar in appearance to what had escaped from the vagina after the operation, was discharged per anum. This phenomenon was repeated several times for some days in succession. From this date, however, to the 1st of April, the general condition of the patient very sensibly mended, although there was still great weakness, and tendency to attacks of evening feverishness. By the aid of canulæ, gradually used larger and larger, the artificial vagina had become considerably wider. The swelling and tenderness in the left groin was much less, and the uterus had resumed its normal dimensions. Although there were occasional relapses of pain and of general distress, the patient was so well by the 23d

of April, that she was able to leave Paris for her native place, on the banks of the Rhine.

By a letter received from the mother, M. Amussat learned that, a few days after reaching home, her daughter menstruated. The discharge was pale, and continued for nearly twenty-four hours. Ten days afterwards the catamenia re-appeared, and lastly only for six hours. From this period they did not return till the month of July, in the first week of which, after suffering greatly from acute pain in the back and through the pelvis, the patient again menstruated. The quantity of the menses profuse, and they were mixed with coagula, like pieces of softened liver. During the following four months, the patient suffered greatly at each catamenial period, and in October she was taken so seriously ill, that her mother was alarmed that she might have an attack similar to what occurred a few days after the operation, when the discharge of blood per anum took place. It was not until the February of 1833, that the girl's health was fairly re-established. From this date, the catamenia returned regularly every four weeks, without being attended with pain or any inconvenience, and the patient, from being weak and emaciated, recovered her strength and embonpoint.

M. Amussat remarks that, in the successful treatment of the preceding case, he was marvellously assisted by Nature having induced an adhesion between the parietes of the distended uterus and the large intestine, and having thus prevented the effusion of its contents into the abdominal cavity—an accident which otherwise must, in all probability, have taken place at the time when the copious discharge of blood per anum occurred.

[We are by no means satisfied by the details of the report, that the discharge of blood from the bowels, on the 18th of March, was the result of any rupture of the uterus or of the Fallopian tube into the large intestine, as alleged by M. Amussat. The discharge may have been quite independent of such an accident.—Rev.*)

In July, 1834, M. Amussat's patient re-visited Paris. She was in perfect health; all the functions, and especially that of menstruation, being performed "à merveille." Madame Boivin, being commissioned to make an examination of the parts, drew up the following report:—

"The vagina is nearly an inch and a half in depth; its surface is smooth, and altogether similar to the inner surface of the labia. There is no appearance of labia minora or nymphæ. The clitoris is well formed. At the extremity of the vagina, the finger discovers a small cicatrix, which feels like the umbilicus of a new-born infant; but it is not provided with any aperture. Upwards and behind the symphysis pubis, is felt an oblong elastic substance, about half an inch in diameter: this I took at first to be the cervix uteri; but, on a more minute examination, it proved to be formed by the anterior wall of the vagina, pushed down and somewhat displaced by the dilated urethra†. At the extremity of the vagina, where the small cicatrix is felt, I find with the speculum an opening, through which I can pass a large probe for five or six lines. The finger introduced into the rectum discovers a small oblong body, terminating upwards in another one of larger dimensions, which is no doubt the uterus. This organ seems to me to be perfectly normal."

In a subsequent consultation between MM. Amussat, Marjolin, and Magendie, they all agreed—"qu'il existait un petit vagin, qui s'etait formé aux depens des petites et meme des grandes levres, la muqueuse ayant eté attirée dans le vagin artificiel par la cicatrice; et qu'au fond de ce vagin on decouvrait un trou, ou fistule, qui conduisait à la matrice, et par lequel l'ecoulement des regles se faisait librement." MM. Marjolin and Magendie cheerfully expressed their decided conviction, that the life of the patient had been saved by the operation which M.

* The reason given by M. Amussat for his opinion, viz. the circumstance of the blood discharged per anum being quite similar to what had escaped per vaginam after the operation—is to us unsatisfactory. We are well aware that extra-uterine conceptions, and abscesses of the Fallopian tubes and of the ovaria, have been discharged by the bowels; but without further proof, we cannot readily admit this explanation in the present case.

† The patient, it appears, had committed the awkward mistake of having introduced pieces of sponge into the meatus urinarius instead of into the vagina, and had thus caused a very considerable dilatation of the urethra for about an inch of its extent.

Amussat had performed; an operation, the result of which was the more creditable to his skill, as it had never, to their knowledge, succeeded before; but it was very doubtful, they added, whether the unfortunate girl was, or ever could be in a marriageable condition.

There was nothing, indeed, to prevent the occurrence of conception; but the imperfect state of the vagina must expose the patient to extreme danger at the period of delivery, if gestation should advance to the full term. The fistulous opening in the uterus and the utero-vaginal canal (le trajet de la fistule utero-vaginale), can perhaps never dilate sufficiently to permit a full-grown fœtus to pass.

The use of bougies, to be gradually increased in size, was recommended with the view of increasing the size of the utero-vaginal canal. On the 29th Nov. 1835, M. Amussat received from the patient's mother a letter, wherein she states —"My daughter keeps her health well; she is very regular, and suffers no pain at the periods. Bougies of about half an inch in thickness can be introduced to the depth of four inches and a half. The fistulous cicatrix is now easily dilatable."

Such are the particulars of this very interesting case at the period when the report of it was submitted to the French Institute.

M. Amussat strongly advises surgeons to attempt the cure of all such cases in the manner which he practised in the preceding one;—by cautious laceration and dilatation of the united parts, rather than by division with a cutting instrument. It will have been observed that two of the surgeons who attended this case, recommended that the uterus should be punctured from the rectum; for the purpose of giving exit to the retained catamenia. M. Amussat attained the same object in a much more scientific and satisfactory method; and his example deserves to be followed in similar cases. M. Boyer, in the tenth volume of his Surgery, has treated, at considerable length, of the various congenital defects of the female organs of generation, and has alluded to the practice to be followed in occlusion of the vagina. He says: "death is the inevitable consequence of the accumulation of the menses in the uterus, when there is a complete absence of the vagina. The only method of preventing the fatal event is to puncture the uterus, either from the perineum (provided there be a sufficient thickness of the septum between the rectum and the urethra) or from the rectum. The operation is a very hazardous one: the bladder has been perforated in more than one case, and the patient has necessarily perished in consequence; and when this accident has been avoided, I have known the patients die from inflammation of the uterus and of the adjoining parts." M. Amussat mentions that, in the unpublished Archives of the Royal Academy of Medicine, there is a history of a case of occlusion of the vagina, successfully treated by Dr. Villiaume of Metz, who divided the vulva with a scalpel to the depth of an inch, and then perforated the distended uterus with a bistoury. In this case, there appears to have been a considerable thickness of substance in the septum, between the rectum and the urethra.—*Med. Chirurg. Rev.*, from *Gaz. Méd. de Paris.*

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36. *Neuralgia—Amputation at the hip joint.* We find the following very extraordinary case recorded in a recent No. of the *Lancet*. Anna Allen, æt. 22, the subject of this case, unparalleled for the length and severity of the disease, and rendered doubly interesting on account of the fortitude, amounting to heroism, with which such protracted suffering was endured, presented herself at the *Middlesex Hospital* about four years ago, complaining of pain in her knee. The pain, which was constant and acute, she stated, had commenced two years previously, when she was sixteen years of age, without any evident cause, and since had gradually increased to its present severity. She had already been seven months under the care of Mr. Keate at *St. George's Hospital*, who applied leeches, blisters, and the various revulsive remedies, but with no alleviation of the pain. She was admitted under the care of Mr. Mayo. The joint presented no tumefaction, redness, &c., indicating disease. It could be bent, but the pain was much increased by the effort. There was no remission of the latter symptom. Leeches, blisters, moxæ, and plasters of *ext. belladonn.*, conjoined with perfect rest of the limb, which was bandaged in the extended position, never once produced the slightest change in the pain. It, on the contrary, rather increased it.

At the expiration of five or six months, she left the hospital, and returned home to Hempstead. There she remained for about a fortnight, and then applied at *St. Thomas's Hospital*, where she was placed under the care of Mr. Travers. That gentleman, after a short trial of counter-irritants, and perhaps thinking, from their utter uselessness, that the disease, by involving the cartilaginous structures of the joint, had become incurable, proposed amputation above the knee, as the only means likely to afford relief. She did not consent, but rather hastily left the hospital.

In about three months she again appeared at the *Middlesex*. The pain was acute, much aggravated by a very slight movement of the articular surfaces; pressure upon the patella occasions absolute agony. Mr. Mayo employed frictions, with tartar-emetic ointment; and a repetition of blisters, but with no better results than before.

Seeking still to find some effectual remedy besides amputation, she went to *St. Bartholomew's Hospital*. There, however, she remained only a fortnight, and then returned to Mr. Mayo, who soon afterwards amputated the limb at the usual distance above the knee. The joint, upon examination, offered but little to account for such long continued suffering. The cartilages and articular ends of the bones did not display the slightest alteration. The synovial membrane alone presented marks of disease. This membrane was universally injected with blood. Patches of greater vascularity were here and there distributed, especially over the articular surfaces; a portion of it at the lower part of the patella was thickened to the extent of two or three lines. The stump healed kindly, but slowly, and she was able to leave the hospital in eleven weeks.

About a week after her return home, she accidentally received a blow upon the stump, which was not yet quite cicatrized. A day or two afterwards, the pain re-appeared. As its return so immediately followed the accident, she considered the blow to be the sole cause. She placed herself again under the care of Mr. Mayo. The stump healed in about a month, but the pain remained. At this time it did not seem to correspond with any particular part, nor was it at all localized. It was diffused over the whole surface of the integuments, as far as three inches above the stump. The slightest pressure, however, upon the cicatrix, particularly over the bone, produced an immediate considerable increase of the pain. An issue was made in the stump, which was permitted to remain for a month or six weeks. She then took carbonate of iron, &c.; for two months more. Not the slightest amendment attended any part of this treatment. After a consultation of the surgeons belonging to the hospital, Mr. Mayo determined upon resection of the stump. The operation was performed five inches higher up. This time a second portion of bone, about an inch, and the same length of the great sciatic nerve, was removed, in order to leave a full stump, and avoid the chance of having the nerve included in the cicatrix.

The end of the sciatic nerve, and that of the saphenous branch of the anterior crural, were found, in examining the resected stump, to have been enlarged into white semicartilaginous bulbs, which were, no doubt, the cause of the morbid sensibility.

In two months, the pain re-appeared. She, however, left the hospital, but was soon (in 14 days) obliged to return. The pain was now quite as intense as before, but did not appear so general. An abscess formed in the stump, and discharged, without any mitigation of pain, which seemed to be principally confined to the course and termination of the sciatic nerve, as the greatest amount of sensibility resided at the outer and back part of the stump. Mr. Mayo consulted upon the case with Sir A. Cooper, who advised resection of the sciatic nerve. It was exposed at the back part of the thigh, and a portion, about an inch and a half long, removed. The relief which immediately succeeded the operation continued but a few days. Again the pain appeared, becoming more and more acute as the healing of the wound advanced. The same phenomena attended its reproduction after the stump was resected. Whilst the wound remained fresh and suppurating, the pain was either entirely absent, or it did not amount to acuteness; but, as in this instance, when it quite healed, the pain rose to the same insupportable intensity.

Every variety of medicine was tried in vain. Opiates alone afforded relief, which was transient, and only continued by frequent administration of the medi-

cine. The stump diminished in size; the bone, without projecting conically, by the atrophy of the surrounding soft parts, came against the cicatrix. When this took place, the pain bore the same character as before, and was also referred by the patient principally to the bone.

Her sufferings from this period continued unabated,—they rather increased. In the spring of the present year, her health began to decline. All this time she continued under the care of Mr. Mayo, who, after much deliberation, at length determined upon amputation at the hip-joint. The patient had for some time contemplated that this operation would be recommended. It had been mentioned in her presence, and afterwards suggested to her as a probable, but not as a certain, means of relief. Worn out by long suffering, she consented, even desired, to submit to the operation.

Operation.—The patient was reclined upon the operating table, close to the edge which corresponded with the affected side, the head and shoulders slightly raised, and supported by assistants. A ligature was first placed upon the femoral artery, an inch below Poupart's ligament. Upon examination, it was found to embrace one of two vessels which resulted from a high division of the artery. The ligature was therefore removed, and placed above the point of bifurcation, immediately beneath the ligament. The operator then introduced a narrow, double-edged, amputating-knife, about twelve inches in length, at the inside of the femoral vessels, an inch and a half below Poupart's ligament, and brought it out at the tuberosity of the ischium. He then carried it obliquely downwards and inwards, to form the inner flap, which was about eight inches in breadth, and four in length, the limb being large and fleshy. The limb was then forcibly abducted as far as possible. The surgeon, with a short, strong, convex scalpel, cut through the capsular ligament at the inner surface of the joint, which he traversed till he arrived at the trochanter major. He now disengaged the top of this process from its muscular attachments, and, resuming the amputating-knife, introduced it at the superior angle of the wound, and made it appear at the inferior one; glided over the trochanter major, which he was enabled to do from the previous division of its attachments, and then, carrying the knife downwards and outwards, formed the second or external flap. Not more than half a minute elapsed from the commencement of the first flap to the termination of the last one. Ten or twelve arteries, including the gluteal and sciatic, were tied, and an inch of the sciatic nerve was drawn out and resected. The patient lost less than 12 ounces of blood.

The operation was followed by extreme prostration; no urine was secreted for the first twelve hours; the pulse continued low, but rapid. She rallied, however, under the administration of stimulants, by the next day, and from that time no other unfavourable symptom occurred.

It is now five months since the operation; the wound is merely superficial; not the slightest indication of the old pain has yet appeared.

When the operation was concluded, Mr. Mayo examined the stump in the presence of his pupils. The sciatic nerve was enlarged at its cut extremity, but not cartilaginous, as after the former resection. He then explained his reasons for expecting the favourable result which has fortunately ensued. The case was one in which the nerves of the limb displayed a disposition to neuralgia. The affection might depend upon different causes. It sometimes proceeded from disease of the spinal cord. A case of neuralgia after amputation occurred in *St. Bartholomew's Hospital;* the patient died after some years of suffering; there numerous cartilaginous and osseous deposits were found upon the posterior surface of the spinal marrow. Neuralgia resulting from such a cause would, of course, be incurable. But it might be confined solely to the nerves of a limb; as an instance, the following case might be mentioned:—

A female presented herself at *St. Thomas's Hospital,* with painful contractions of the fingers. Amputation on the fore arm was performed by Mr. Tyrrell. After the wound had cicatrized, neuralgia of the stump appeared, for which Mr. Langstaffe resected the stump at the elbow; the neuralgia, however, returned as before. At last, Mr. Bransby Cooper took off the remainder of the limb at the shoulder-joint; the consequence was, that the affection never again returned. The patient, singularly enough, afterwards became an inmate of the *Middlesex* for disease of the chest, where she had been seen by the pupils of the hospital. It

was certainly difficult to explain why the detachment of a limb at the joint should so effectually arrest the malady; the divided ends of the nerves were still left in the stump. When the head of the bone remained, the muscles which were attached to it constantly tended, by their contractions, to excite the wounded nerves, which, it might be supposed, became still more sensible to external impression by the formation of their bulbous terminations. Would not such causes be amply sufficient where there was, as it were, an idiosyncracy to neuralgia? In Allen's case, the stump was often spasmodically thrown forwards and upwards, which was always accompanied with a temporary increase of the pain. When the bone was entirely taken away, none of those movements could take place; the muscles were atrophied, and the nerves, no longer exposed to any cause of excitement, would probably atrophise also.—*Lancet*, Oct. 8, 1836.

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37. *Case of Aneurism of the arteria innominata, and of the origin of the subclavian artery, treated by ligature of the common carotid.* But few attempts have been made to cure by operation aneurism of the innominata. The only cases on record we believe are those of Wardrop, Key, Evans, and of our countrymen, Mott and Morrisson.* A sixth and successful attempt has recently been made by S. W. Fearn, Esq. of Derby, England. The case is one of so much interest and importance that every minute particular in relation to it, is of value. We shall therefore give the full details of the case as communicated to the *Lancet* by the operator.

Case.—Aug. 22nd. Mary Scattergood, æt. 28, lives at Burton-on-Trent. She has been married eight years without having had any child, and menstruates regularly. She states that her present illness has existed during five months, and that it commenced with a violent fit of coughing, one night, when she was going to bed. Soon after this she experienced a throbbing swelling above the sternum, which, for four or five weeks, gave her a good deal of pain. She was bled several times by her medical attendants, Mr. Tomlinson and Mr. Lowe, with relief from the pain in the tumour, and, shortly afterwards, was admitted as an in-patient of the *Derby Infirmary*, under the care of Dr. Bent. I examined the case, whilst in hospital, with Dr. Bent and the other medical officers, and at that time made the following observations:—There was a rounded, pulsating tumour, immediately above the sternum, bounded, laterally, by the trachea and the tracheal margin of the sterno-cleido-mastoideus, which was evidently making considerable pressure upon the trachea, near its bifurcation, as evidenced by loud wheezing, frequent cough, and general difficulty of breathing. Loud *bruit de soufflet* was heard in the supra-clavicular space, and a less distinct bruit along the course of the right common carotid. The bruit in the subclavian artery was rendered more loud by stopping the transit of blood through the carotid, and when the circulation through the subclavian was arrested, the bruit in the carotid ceased. The tumour itself emitted sounds similar to, and synchronous with, those of the heart. The heart's sounds were natural, and there was no râle in the lungs. The pulse in the right wrist was very indistinct; that in the left was natural as to strength and frequency.

The prevailing opinion at this examination appeared to be, that the disease was an aneurism of the arteria innominata, but the surgeon to whose care she was subsequently transferred, and one of his colleagues, considered that it was an aneurism of the arch of the aörta, and, of course, that any operation for its cure was quite out of the question.

She remained in the Infirmary during several weeks after this time, undergoing medical treatment, and this day (Aug. 22nd) was discharged at her own request.

Her difficulty of breathing and cough had of late increased very much, and the acetate of morphia had failed to procure her rest at night. The dyspnœa was aggravated by the slightest exertion, and the wheezing was rendered much more loud.

After her discharge I offered to take lodgings for her in the town, and to perform what appeared to me to be the requisite operation, to which proposal she very readily assented, as she had a conviction that nothing short of an operation could save her life.

* See present No. of this Journal, p. 329.

27. The patient came yesterday from Burton, in a carrier's cart, and was placed in her lodgings. She has passed a better night than usual, and I have this morning made a careful examination of her present condition. Her cough is troublesome, and the wheezing very loud; pulse almost imperceptible in the right wrist; in the left it is natural, and gives seventy-two beats in the minute. She is obliged to lie with her head a good deal raised. The tumour is very distinct, and throbbing, above the sternum, in the situation first noted, and also in the space between the sternal and clavicular attachment of the sterno-mastoid muscle. Bruit de soufflet loud in the supra-clavicular region, and still increased by stopping the circulation in the carotid; there is, however, no bruit audible along the course of the carotid. I made pressure for some time upon the carotid, so as to stop the circulation through it, and was pleased to find that her breathing became, in a marked degree, more free and less embarrassed. A similar experiment upon the subclavian did not affect the state of her breathing at all. The respiratory murmur is natural over the whole chest, as also are the sounds of the heart. Bowels not open to-day. To take ℥iss. of the compound decoction of aloes; to lie in bed, and to have for diet, flour-pudding, tea, and gruel.

29. I have this morning visited the patient, with Dr. Bent and Mr. Wright, and again carefully examined the tumour and the vessels proceeding from it. We found her suffering very much from the difficulty of breathing, and unable to remain for any length of time in the recumbent position. The experiment of stopping the circulation through the carotid and subclavian was repeated, and the result, so far as the carotid was concerned, was quite in accordance with what happened at the last examination. Each time when the carotid was compressed, the breathing became more tranquil, and when the pressure was removed the dyspnœa instantly returned. A similar compression of the subclavian artery increased the difficulty of breathing, but when the subclavian and carotid arteries were compressed at the same time, the relief to the breathing was much the same as if the carotid only had been obstructed.

It was not difficult, from this and the previous examinations, to determine which vessel to select for the application of a ligature. The circumstance of the circulation in the subclavian artery being already considerably obstructed, and its entire obstruction adding to the distressing symptoms, taken with the further circumstance that pressure on the carotid was followed by a relief from the dyspnœa, seemed clearly to indicate, that in any operation for the cure of the disease, a preference must be given to ligature of the carotid. And here I cannot help remarking the analogy in one respect between this case, and the case in which Mr. Wardrop placed a ligature upon the subclavian artery for an aneurism of the innominata. In his case a preference was given to operating upon the subclavian, from its appearing that the circulation in the carotid had almost ceased, and in my patient I selected the carotid, because (with other reasons) the circulation in the subclavian is considerably arrested.

Operation.—30th. I this day proceeded to the performance of the operation, in the presence of about twenty medical gentlemen, amongst whom were Dr. Bent, Mr. Evans (Belper), Mr. Wright, Mr. Fox, &c. The patient was placed upon a table, and it was found necessary to keep her in nearly an upright position, owing to the difficulty of breathing, and the cough, being so much increased if she attempted to lie down. An incision about three inches in length was made, commencing an inch below the angle of the jaw, and extending downwards along the inner border of the sterno-cleido mastoideus. A small artery, which gave no trouble, was divided in this first step of the operation. The cervical fascia was then cut through, and, by a little dissection, the sheath of the vessels, with some twigs of the descendens noni, and the omo-hyoideus, were brought into view. After some trouble, owing to the depth of the vessels, from the head being inclined forwards, I opened the sheath above the omo-hyoideus, but was unable to pass a ligature beneath the vessel. I therefore at once divided the belly of the omo-hyoid, and thus exposed, much more freely, the vessels. An armed aneurismal needle was then passed beneath the carotid, from within outwards (contrary to the usual directions in such cases), care being taken not to injure the vein, or to include the par vagum, and, after waiting a short time, the ligature was firmly tied.

Scarcely an ounce of blood was lost, but the different steps of the operation

were much impeded by the frequent cough and the sense of suffocation, which considerably distended the veins, and by the necessity of keeping the patient almost constantly in an upright condition. The artery was large, and its coats appeared to be a good deal thickened. The sheath also appeared to be more than usually adherent to the vessels. But one ligature was employed, and, the wound being dressed, she was put to bed. She complained a good deal of pain in the right ear immediately after the operation.

Progress.—At three o'clock, an hour after the operation, she was breathing tranquilly, and sat up in bed, and smoked some tobacco. Her pulse was 86; by five o'clock it had risen to 96; and at eight o'clock it was 106. Her breathing, from the time of the operation, had, at intervals, been much oppressed, and she had had many violent fits of coughing. The dyspnœa was now (eight P. M.) very distressing, and I accordingly bled her to ten ounces, and administered forty drops of laudanum. Her breathing seemed a little relieved after the bleeding, and in a short time she was able to lie down. The pulse rose to 120.

31. One A. M. The patient is now breathing quietly, and has scarcely coughed at all for the last two hours; pulse 100. The pain in the right ear, of which she complained directly after the operation, has continued, but is now rather better.

Eight A. M. Has passed a comfortable night, having slept at intervals a little. She scarcely coughed at all from eleven o'clock last night until seven this morning. There seems now, however, to be a considerable accumulation of mucus in the trachea, and she has been coughing violently for the last hour. Bowels costive. Let her take an ounce and a half of the compound decoction of aloes immediately.

Noon. The cough continued until eleven o'clock. The left side of the face is now flushed and hot, and looks plump, and slightly livid; the right side has a shrunk appearance, is pale, and cold; the pain in the ear has entirely subsided. To repeat the decoction of aloes, and to have two dozen leeches applied to the upper part of the chest.

Six P. M. The leeches have bled freely, with evident relief to the breathing. Bowels not open. To have a common purging draught.

Sept. 1st., half-past one A. M. Bowels open twice, freely; she has, however, great difficulty of breathing, and makes a loud wheezing noise. Habeat *haust.* c. *ether. sulph.* ℥ss., et *tr. opii.* gtt. xxx.

Eight A. M. Soon after the last visit her breathing became better, and she has passed a very good night; she has slept for two or three hours, and expresses herself this morning as a good deal relieved. Bowels open; pulse 120; the pulse in the right wrist about the same as before operation,—if any thing, rather more feeble. She says that she cannot now feel the "beating of the lump;" which she could distinctly before the operation, but she feels a stoppage at the lower part of the windpipe. Skin cool, face not flushed. She passed the remainder of the day comfortably, sleeping for two or three hours at a time, and she has been less troubled with the cough and dyspnœa.

2. Eight A. M. Has slept but little; her cough has teased her most in the night, though she says her breathing is more free. Has expectorated a large quantity of frothy mucus, and has been repeatedly so sick as to vomit; pulse 120.

Five P. M. The expectoration has, during the whole day, been very profuse, and attended with violent fits of coughing. There is the most marked mucus rattle in the trachea and the larger bronchial tubes. The bruit de soufflet is heard above and below the clavicle, as before the operation, and the pulse in the right wrist has become much more distinct. The sickness has abated; pulse 135. Appl. *Hirudines* xij. sterno, et sumat postea *haust.* c. *ether. sulph.* ℥ss., et *tr. opii.* gtt. xxxv.

Dressed the wound, which appears to have healed by the first intention.

Half-past eleven P. M. Has taken two doses of the ether and laudanum, and appears now more composed. There is less rattle, and the violence of the cough has a good deal abated.

3. Nine A. M. Has slept, at intervals, for several hours, and says that her breathing this morning is more free. There is, however, a good deal of mucus rattle, and the pulse is 140, and weak. Her strength seems good. To take beef-tea, and to continue the ether and laudanum at intervals of four hours.

Eleven P. M. Has been much more comfortable during the day, though the

frothy accumulation continues. Bowels freely open. Continue the ether and the tincture of opium.

4. Has had a good night, and says her breathing is much better than it was before the operation. Thinks the tumour is less; it feels perhaps a little more solid, but the pulsation in it remains about the same.

5. Has been up during near an hour, whilst her bed was made; feels much better; slept six hours during the night; wound appears to be quite healed, excepting at the ligature; pulse 106.

7. A good night, and this morning she is as well as usual; pulse 100; no fever. Pergat.

9. Continues to improve; has had an excellent night, and says she has never, since the commencement of her illness, felt the beating of the tumour so little as she does now; pulse 96. If the circulation through the subclavian be stopped, the breathing becomes shorter, and more difficult, and if the pressure be continued for some time, the embarrassment to the breathing is very distressing. Even slight exertion adds to the dyspnœa, but the cough and expectoration are now very trifling. The tumour is considerably lessened, and its pulsations are not nearly so distinct.

11. In good spirits, and complains only of the dyspnœa. The pulsations of the tumour cannot now be felt at the space between the sternal and clavicular attachments of the sterno-mastoid, and they are much more feeble above the sternum. Appr. *Empl. lyttæ.* parti superiori sterni, et cont. *Haust. ether.* et *tr. opii.* h. s.

19. Has been going on well since the last report. The dyspnœa was entirely relieved by the blister, and has not since returned, and the cough is nearly gone. Her nights are good; she sits up during seven or eight hours daily, and her breathing is not affected by the exertion of walking about, or going up and down stairs. The tumour still pulsates, but seems to be gradually diminishing in size. Pressure on the subclavian makes her breathing "thick," as she calls it, but does not produce any thing like the distress it would have occasioned a week ago.

27. It is now a month since the operation was performed. The patient walks out daily; her difficulty of breathing is entirely removed, and only returns, slightly, if she walks fast. The tumour still pulsates distinctly, but any pressure upon it does not give rise to dyspnœa, or inconvenience of any kind. She sleeps well at night, and has for the last ten days been entirely without medicine. She had expressed a wish to return to her friends at Burton, and as she appears to be so well, I have permitted her to do so."

Mr. Fearn promises to make public the future progress of the case.

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38. *Case of Fracture of the Neck and Trochanter of the Thigh-bone, attended with Inversion of the Limb.*—Notwithstanding the statements of Paré, Petit, and Dessault, concerning inversion of the limb in fractures of the neck of the thigh-bone, it is now known that this symptom is so seldom present, that farther observations are required to enable us to estimate its relative frequency and importance in this injury.

In one form of fracture of the neck of the thigh-bone, Mr. Guthrie has offered an explanation of the cause of inversion of the limb, founded on a consideration of the direction of the fracture in relation to the attachment of the muscles rotating the thigh outwards. Whenever the fracture is external to the insertions of the *pyriformis, gemelli, obturatores,* and *quadratus* muscles, yet sufficiently within the insertion of the *glutæus medius* and *minimus,* Mr. Guthrie states that the toes will be turned inwards.

The following case related by George Gulliver, tends to confirm this observation.

"An insane officer, aged 30, fell on his right hip, and fractured the neck of the thigh-bone. Shortening and inversion of the limb immediately followed, and remained until his death, which took place from disease of the lungs eleven months after the accident.

"The thigh-bone exhibits fracture of the neck at its junction with the shaft, the fracture extending downwards and backwards through the great, to the basis of the little trochanter, thus detaching the posterior part of the former and the whole of the latter process with the upper fragment. The head of the bone is considerably depressed, but the fracture is firmly consolidated by abundant deposit of new

osseous matter, an arch of which extends from the anterior inferior spinous process of the haunch-bone across the front of the joint to the upper part of the shaft of the thigh-bone.

"This portion of adventitious bone became detached during the process of maceration, having been connected only by fibro-cartilaginous substance to the neighbouring bones,—a circumstance which shows the facility with which bone may be formed in the soft parts contiguous to a fracture, when displacement of the fragments or any other cause excites a high degree of ossific action. In overlapping fractures in the lower animals, I have frequently observed a distinct centre of ossification established in the concavity formed by the fragments, a considerable time elapsing before this *accidental callus*, as it might be termed, acquired a connexion with the old bone."—*Edinburgh Med. and Surg. Journ.* Oct. 1836.

MIDWIFERY.

39. *Parturition of a Child at full time, and of a blighted fœtus.*—Mr. L. Owen Fox records in a late number of the Lancet, (17th September, 1836,) an example of this. The mother, æt. 30, had previously had two children. Mr. F. was called to her 28th May, and shortly after his arrival a large healthy child was born, and the uterine efforts continued very severe, but the placenta was not expelled. After waiting a short time, he passed his finger along the cord to the uterus, when he discovered a soft mass, not unlike distended membranes, protruding from it. During a strong pain he made slight extension on the cord, when the placenta, together with the mass, immediately came away. On examining the latter, he found it to consist of a small male fœtus, about five inches in length, surrounded by about three ounces of fluid. The integuments of the fœtus were softened, and presented just such an appearance as might be expected from long maceration; it did not give off any unusual odour. On inquiry Mr. F. could only learn that his patient expected to be confined at least three months before the event happened.

40. *A new diagnostic sign of Pregnancy.*—Professor Kluge, of Berlin, considers a bluish *tint of the vagina*, extending from the os externum to the os uteri, to be a sure indication of pregnancy. According to Dr. K., this discoloration commences in the fourth week of pregnancy, continues to increase to the period of delivery, and ceases with the lochia. The only condition considered as likely to vitiate the test, is the existence of hæmorrhoids in a very marked degree. If future observation should confirm the validity of this test, it will be a valuable discovery, from the difficulty of detecting pregnancy in its earliest period.—*British & Foreign Med. Rev.*, from *Journ. of Med. Chirurg.*, Nov. 1835.

41. *Uterine Apoplexy.*—Dr. Gennars, of Galbiati, has lately described under this name a disease, which he says has been ordinarily confounded with puerperal convulsions, to which it bears some resemblance. We confess the difference does not strike us. He describes it as follows:

"This disease sometimes attacks women in the last months of pregnancy, during labour, or after delivery, and is of a very fatal nature; it commences by a kind of epileptic attack. The lips, jaws, eyes, feet, and hands are seized with convulsive movements; the blood is determined towards the head; the face becomes swollen and livid; the tongue gets black, and so tumefied that the mouth is too small to contain it; a bloody froth is expelled from the mouth by the efforts of respiration, which becomes pouting and irregular; the danger of suffocation seems imminent; the pulse is generally small and frequent. When this terrible paroxysm has continued for about five or ten minutes, the convulsive movements cease; the tumefaction and lividity of the face and tongue disappear; respiration becomes stertorous; the limbs remain motionless and paralyzed; the senses lose all power of action, as in epilepsy; and the patient falls into an apoplectic state. This latter continues from 10 to 20 minutes; it ceases at length; and when the disease is recent, the patient awakes, as it were, from a deep sleep, recovers her voice, movement, and intelligence. However, in proportion as the fits become more frequent, the senses are recovered imperfectly, and sometimes the woman

remains for a considerable time in a state of coma-vigil, opening the eyes when spoken to, but unable to answer. Such is the first period of the disease, characterized by three successive phenomena,—epilepsy, apoplexy, and tranquillity. The calm, unfortunately, is only for a time; the convulsions re-appear, with the characters already described, and, having continued for an uncertain time, terminates in apoplexy, as before. The disease now advances rapidly. The apoplectic symptoms are no longer followed by tranquillity, but replaced by an epileptic attack, and these two principal phenomena succeed one another without any interval of repose.

"The second period has now arrived, and is characterized by an interchange of apoplexy and epilepsy.

"Finally: after a violent fit of convulsions, or even when the convulsive movements present little intensity, the woman falls into a permanent state of apoplexy, which terminates in death, after one or two more days.

"This constitutes the third period of the disease. Generally speaking, these three periods are sufficiently marked, and the disease terminates fatally. Sometimes, however, it is limited to the first period; in this case we may hope to obtain a cure by medical aid, without having recourse to surgical means. The author has seen two cases of this kind.

"In a few cases the first period is very short, scarcely observable, and the affection seems to begin suddenly with the second.

"In the second period, if the child remain in the uterus, the only means of arresting the progress of the symptoms is extraction of the fœtus.

"In the third stage the child is dead, and even when removed from the uterus the apoplectic symptoms commonly persevere, and the woman dies.

"The disease of which we now speak depends originally on irritation of the uterus. We have observed it (says the author) most frequently in women arrived at the last months of pregnancy, when the uterus is considerably distended by the pressure of twins; besides, a prompt delivery is the only means of arresting its progress. The apoplectic symptoms, at least in the beginning, depend on irritation of the brain, not on compression, as is proved by their alternations with epilepsy, and a state of calm; but in the third stage the brain is actually compressed.

"As this disease has hitherto been confounded with ordinary convulsions, so common in hysterical or sensitive women, we are not able to determine its treatment in a fixed or positive manner. A few writers, who assure us they have seen it during ordinary labour, when the neck and orifice of the uterus are dilated, recommend artificial extraction of the fœtus after every other means has failed. But what are we to do when the disease attacks a woman at the eighth or ninth month after delivery? In this we find authors completely silent. M. Amantia once attempted extraction of the fœtus in the case of a daughter of the Marquis de Turris, who was seized during labour; but unfortunately both mother and child perished, and the surgeon relapsed into the old error of believing this affection beyond the reach of art. However, the great number of facts we now possess enable us to declare that uterine apoplexy is not so fatal a disease, and may be combated successfully, even before delivery, if proper means are employed. As the disease depends on irritation communicated from the uterus to the centre of the nervous system, we must direct our treatment towards these two points simultaneously. Experience shows the disease may be subdued in its first stage by treatment which is purely medical; that in the second stage, unless the uterine irritation be allayed, it terminates in death; but that the irritation commonly subsides when the uterus is emptied and restored to its normal volume. If this be done in the first, or commencement of the second stage, we commonly save both mother and child; at a later period, it is more difficult to save the child; finally, in the third stage the child is always dead, and the mother's life is in the most imminent danger."

The following is the method of treatment which the author employs:—

"At the commencement general bleeding; then leeches to the temples and pubis. The disease does not depend on plethora, and never is cut short by mere bleeding, but it is necessary to diminish the mass of the blood which during the second stage oppresses the head and lungs. Next to bleeding, baths are the most efficacious means. In the two cases where this affection terminated favourably

during its first stage, the principal remedies employed were baths and venesection. Should this disease advance in spite of these means, we must have recourse to surgical aid, and endeavour to empty the uterus. This is easily done when the disease comes on during labour; the os uteri is then dilated either wholly or partially, or is at least dilatable; we therefore find little difficulty in passing the hand into the uterus, rupturing the membranes, and extracting the child by the feet.

"Should labour be more advanced, and the head lodged in the cavity of the pelvis, the forceps must be employed; the child is thus extracted living, and the mother soon recovers. When attempts at extraction are made towards the end of the second period, or during the third period, that is to say, when the fœtus lies in a state of complete apoplexy, interrupted only by some convulsive movements, the fœtus is dead, and, in a majority of cases, the operation fails to save the mother's life.

"It often happens, soon after the extraction of the fœtus and placenta, that the mother gradually recovers the use of her senses, becomes calm, and the disease terminates in a fortunate manner; but in many other cases several hours elapse before this desired result is obtained; the epileptic symptoms continue to alternate with the apoplectic ones, and the disease passes away gradually: this usually takes place when the operation is performed at a late period. The most efficacious means of dissipating the accidents which remain, are baths and muse. As it is impossible to introduce this, or any other medicine, by the mouth, it is thrown up the rectum. The muse seems equally beneficial in the uterine apoplexy which supervenes after delivery, and which is the more dangerous, from being beyond all surgical resource. A general bleeding should always precede the administration of the muse, which may be aided by baths.

"After the extraction of the fœtus and placenta, want of sufficient contractile power in the uterus, produced by the apoplectic state, may give rise to severe hæmorrhage: but this we have always seen arrested by the usual means.

"Finally: after the disappearance of the convulsions, the woman is often subject to acute febrile symptoms, which continue for a week or fifteen days. The fever is generally benign, and yields to the use of baths."—*Gaz. Méd. de Paris*, No. 27, *and Osservat. Med.*

MEDICAL STATISTICS.

42. *Effect of Age on the mortality of Sickness.*—We find in a recent number of the *Lancet*, (3d September, 1836,) some exceedingly interesting observations, by T. R. Edmonds, Esq., on this subject. The diminution of the number of deaths, and of the quantity of sickness suffered by a given population, may be regarded as the legitimate object of medical science. If there exist any fixed laws, altogether independent of medicine, determining the relation between the living, the sick, and the dying, the knowledge of those laws must precede the power of estimating the effect of any given system of medical treatment. The merit of discovering some peculiarly efficacious treatment of a particular malady, is frequently claimed by different medical men, on the ground of the mortality among their patients being unusually low. All mention of the *ages* of their patients is omitted, and no suspicion appears to be entertained of the fact that, under the same medical treatment, a difference of 23 years in the ages of two classes of patients will cause a doubling of the mortality. When the ages of the patients are unknown, the diminished duration of sickness, also, is no ground for presuming on any superiority of treatment. There exists satisfactory (though indirect) evidence, that the mean duration of an attack of sickness is equally dependent on the ages of the patients.

Between the ages of 15 and 60 years, Mr. E. believes it to be a fact sufficiently well established, that for every death two years of sickness (nearly) have been suffered. "If, as is commonly the fact," he observes, "the annual deaths between these ages amount to 1½ per cent., there will be *constantly sick* 3 per cent. of this part of the population. Respecting the number of *cases* of sickness from which the numbers constantly sick have been derived, we have very little direct information. If the mean

duration of an attack of sickness be assumed to be 36½ days, or the tenth part of a year, then 30 per cent. of this population are yearly attacked by sickness. In the *British Medical Almanac* for 1836, Mr. Farr has shown the above number of days to represent very nearly the usual duration of an attack of sickness in the hospitals of England. Out of 30 cases of sickness, there will then be 1½ deaths, being 5 per cent., or 1 out of 20. In the hospitals of London the deaths to cases commonly amount to 12 per cent. among the in-patients, in the physicians' wards 24 per cent., and the surgeons' wards 8 per cent. If the out-patients had been included, the proportion of deaths to the total cases would probably not have materially differed from the above-mentioned proportion of one case in twenty.

"In order to determine the sanitary state of any population for one year, the elements to be observed are,—the number living, the number dying, the number attacked by sickness, and the mean number constantly sick, *all distinguished according to age.* When the third and fourth numbers have been observed, the mean duration of an attack of sickness at each age is known. A definite result cannot be obtained, unless two, at least, of the above four elements be simultaneously observed. It is not, however, indispensably necessary that *more* than two of these elements should be observed at one time. If, for example, from one observation we obtain the relation between the living and the dying,—from another, the relation between the dying and attacks of sickness,—and from a third observation, the relation between the numbers attacked and the numbers constantly sick, we shall then have all that is required to determine the mutual relation of all the four elements.

It appears from the investigations of Mr. E. that the deaths out of a given number living, increase at the rate of 31 per cent. every ten years between the ages of 15 and 55 years.

Mr. E. endeavours to prove that the mortality from cases of sickness is subject to a simple mathematical law, coincident with a similar law regulating mortality independent of sickness. "This theory of mortality consists in the assertion that the variations in the mortality from birth to the end of life are regulated by three constants respectively presiding over three well marked periods of human life,—before, during, and after the existence of the procreative power. According to this theory, when the deaths out of a given number living are known at any one age, the mortality at every age is also known. In all the ordinary tables of mortality there is represented a rate of mortality for every year of age, each rate having no specific connexion with the rate at any other age. Such tables will, therefore, consist of *one hundred* independent constants, one for each year of age. My theoretical tables are deduced from *one* constant, (determined by observation,) each of the other 99 numbers having a determined relation to this single constant. This theory will satisfactorily represent all well observed facts on human mortality; in many cases the accuracy of coincidence is astonishing, when the variable circumstances of the population observed are taken into consideration."

43. *Mortality in England.*—At the late meeting of the British Association at Bristol it was stated that the annual mortality in London was 1 in 40; and in all England, 1 in 59. Mr. Edmonds, in a communication in the *Lancet*, (10 Sept.; 1836,) impugns this statement, and asserts the mortality in London to be 1 in 35, and in all England, 1 in 47.2.

MISCELLANEOUS.

44. *British Association for the Advancement of Science. Meeting at Bristol.*—This association has attracted much attention in this country, and the account of its annual meeting is looked for, by the cultivators of all the sciences, with much interest. The following account of the proceedings of the Medical Section of this Association will, therefore, we are confident, prove acceptable to our readers. For this account, we are indebted to our esteemed contemporary the *British and Foreign Medical Review.* It was prepared, the editors inform us, by two of their professional friends who had access to all the documents presented to the Section, and reliance may be given to its accuracy.

"The proceedings of the Section were opened on Monday, the 22nd of August, by an address from its President, Dr. Roget, on the general objects of the Association, and those of the Medical Section in particular. Those objects he stated to be the collection and concentration of information, and its subsequent diffusion, after having been carefully sifted and having received the stamp of the Association.

1. The Report of the Dublin Committee appointed to investigate the Pathology of the Brain and Nervous System was produced by Dr. O'Beirne, who stated that the present must be considered only as a provisional Report, as the committee had been chiefly occupied with the collection of numerous cases of injuries of the brain, and lesions of individual nerves, the particulars of which cases had been carefully registered; and they are anxious to procure a still greater number before they venture to form any general inferences.

2. Dr. O'Beirne then communicated an abstract of an unpublished work on Tetanus. He commenced with an account of the opportunities which he had enjoyed of observing this disease, which were numerous and extensive, and of the circumstances which induced him to commence and prosecute the enquiry. Dr. O'Beirne repudiates all specific divisions of the disease, except that which distinguishes the *traumatic* (or symptomatic) from the *atraumatic* (or idiopathic). He allows of no such varieties as *Trismus* and *Pleurosthotonos*, recognising only *Opisthotonos*, which is the more common form, and *Emprosthotonos*, which he agrees with authors in considering very rare. He proposed to arrange particular specimens of the disease as being *peracute*, *acute*, *subacute*, and *chronic;* and then went into a consideration of the causes, respecting which his views were in accordance with most authorities.

The extreme periods of accession of the traumatic species were, according to his experience, the fourth day and the seventeenth; he stated that it never occurred after the cicatrization had been completed, or during the existence of active inflammation in the wound, and that it never succeeded a wound which did not penetrate below the skin, to the muscles or fascia. The general character of the disease he finds to be the same in all climates, countries, and ages; but the atraumatic species supervenes much earlier than the traumatic.

He has no confidence in any reputed premonitory symptoms, and finds that in no instance is it ushered in or attended by symptoms peculiar to febrile diseases or eruptions on the skin, except quickness of pulse, which in the atraumatic species is permanent. He denies the existence of any tendency to crises or sudden disappearance, and states that recovery takes place slowly, the period varying from eighteen days to seven or eight weeks.

The only true pathognomonic sign is a *peculiar expression of the countenance*, long retained after the attack, and even after death, and not indicative of any particular mental emotion. An engraved representation of the face of a patient during and between the tetanic paroxysms was exhibited.

The symptoms of the disease in both species were minutely stated, and arranged under three stages. The only constant morbid appearances are distension of the cæcum and colon, and rigid contraction of the rectum. In the emprosthotonic variety, an extremely contracted state of the stomach is occasionally noticed.

Dr. O'Beirne lays stress upon the amount of pain in opisthotonos being much less than is generally supposed, and declares the symptoms and course to be more uniform in this than in any other malady. In his observations on the diagnosis, he remarked upon the extraordinary extent to which this disease had been confounded with others, and enumerated the spurious cases under several heads. He particularly mentioned that, if he were to find in a patient the angles of the mouth drawn either upwards or downwards, he should conclude that the case was not a true specimen of the disease.

With respect to the seat of tetanus, Dr. O'B. expressed his belief that the anterior column of the spinal cord, and probably the thalami optici and corpora striata, are the parts in the affections of which we must look for the pathology of the disease; but he considers that, in emprosthotonos, the pneumogastric nerve is also affected. The change in these parts is functional only, and not connected with inflammation or organic lesion. All the symptoms are therefore the product of muscular action, dependent upon an accumulation or increased intensity of the *motific principle*, residing in the anterior spinal column.

The remedial measure on which Dr. O'B. places most reliance is the use of tobacco enemata, thrown into the colon by means of a flexible tube introduced through the rectum. This method is detailed in his work on Defœcation, which he stated to have been the offspring of his researches upon tetanus. He presented a list of twenty cases, eleven of which recovered; and concluded his paper by adverting to the disease as it occurs in the horse, in the treatment of which, his method, in the hands of veterinary surgeons, had been attended with success.

A discussion then ensued, in which Dr. Yelloly, Dr. Reid, Dr. Wallis, Mr. Bracy Clark, Dr. Fowler, Mr. King, Mr. Hetling, Dr. Symonds, Mr. Greeves, Dr. Howell, Mr. Carmichael, and Mr. Broughton, severally took a part. To us it appeared that the difference between Dr. O'Beirne and those who opposed his views was principally one of words, depending upon the restricted or extended sense in which the term tetanus was respectively employed by them.

3. A case of Aneurism of the Arteria Innominata and Thoracic Aorta, communicated by Sir David Dickson, was read by Dr. Symonds. This paper was accompanied by a drawing representing the diseased parts.

Tuesday.—1. The first paper read was entitled "Observations on Remedies for Diseases of the Brain," by Dr. Prichard.

The principal object of this paper was to recommend the employment of a peculiar mode of counter-irritation in all those forms of cerebral disease which are accompanied by coma, stupor, or diminished sensibility, excluding those which are attended with excitement. This method consists in the formation of a *long issue*, better made by the scalpel than by an escharotic, in the direction of the sagittal suture. The details of a case of complete amaurosis unsuccessfully combated by the antiphlogistic and mercurial treatment, but in which sight began to return immediately upon the establishment of suppuration in an issue of this description, were given; and the patient, to whom his sight has been perfectly restored, was submitted to the examination of the Section.*

2. A communication was then read by Dr. Houston, of Dublin, on a Human Fœtus without Heart or Lungs. The case was one of twins, between the seventh and eighth months. The placentæ were intimately united, but the line of their junction was distinct. Each fœtus had its own membranes and umbilical cord, the latter being inserted into the placenta at some distance from each other. The imperfect fœtus was acephalous, as in other instances of the kind, but was alive at the time of birth; there was no subdivision of chest and abdomen; the spinal canal began at the sixth cervical vertebra; there was no heart, lungs, liver, or stomach; the lower intestines contained meconium; the kidneys existed, but only one ureter; and there was general œdema of the whole body. The state of the circulating apparatus had been carefully examined by Dr. H., and appeared to him to lead to some important conclusions. The cord was short, and the umbilical vein, which was nearly straight, communicated with the right hypogastric, which joined the vena cava in the usual manner. From this vessel branches proceeded throughout the system, *all of which were totally devoid of valves.* The arterial system arising from the aorta was in like manner distributed through the body, but had nowhere any communication with the venous system, except by the capillaries; so that, by whatever vessels the blood entered the body, by the same it must have been distributed. A round tumour, which existed in the substance of the cord, outside the umbilicus, had produced effects on the vessels calculated to throw light on the course of the circulation; the vein was varicose from the tumour as far as the placenta, and the arteries were dilated on the side next the body of the fœtus.

Dr. Houston then adverted to the researches of various anatomists on the circulation of the acardiac fœtus, and especially to those of Sir A. Cooper, who maintains, from the examination of a recent case, that the umbilical vessels of two fœtuses anastomose freely in the placenta, and that the circulation in the imperfect embryo is carried on by the action of the heart of its companion in utero. If this view be correct, the heart of the perfect fœtus ought to be nearly double its usual size, or the child itself small,—neither of which is the case; the umbilical artery of the imperfect fœtus would then serve the purpose of the vein

[* See Dr. Prichard's paper, p. 499, of this number.—Ed.]

in carrying the blood *from* the placenta, which in this case it did not appear to have done; and a large quantity of the blood would be continually circulating without the renovating influence of the placenta. The presence of a second placenta, however imperfect or however connected with the other, is incompatible with the direct transmission of blood from the perfect to the imperfect fœtus, and with the idea that the latter is a mere offset from the former. The effects produced by the tumour on the vessels of the cord, and the absence of valves in the veins throughout the body, were adduced by Dr. Houston as strong evidence in favour of his opinion that the circulation of the *cord* of the monster was regular, but that in its *body* the functions of the arteries and veins had been inverted. He considers that the presence of an anastomosis between the cords should lead rather to the inference that the blood traverses both placentæ in the same course, than that it takes a direction in the one different from that which it follows in the other. Dr. H. suggested several good reasons in support of his opinion that the heart of the perfect fœtus can exert little influence upon the vessels of the other; and expressed his opinion that we must look to some other cause than *vis à tergo* for the accomplishment of this object. The theory of "vital attractions and repulsions," though conveyed in terms which may be considered rather as expressive of the facts than as explanatory of them, probably approaches nearer to the truth than any other which has yet been broached. With respect to the influence which the action of the vessels themselves has upon the circulation, Dr. Houston mentioned a case in which injection passed very freely through the vessels of a mortified limb, which were entirely free from coagulum or other obstruction; but the blood had not passed through them during life, though the action of the heart was unimpaired.

Dr. Prichard and Dr. Carson objected to the inference drawn by Dr. Houston from the latter case. Dr. Macartney stated that he had more than once endeavoured to inject a gangrenous limb immediately after its removal, but had been unsuccessful.

Mr. Carpenter pointed out the very striking analogies which are presented by the circulation in vegetables, all of which favour the view that the motion of fluids in vessels is in a great degree independent of a central organ of impulsion, and is closely connected with the changes which take place in the capillary vessels. He also alluded to the fact that there was no case on record in which an acardiac fœtus existed without a perfect fœtus.

Dr. Houston remarked on the latter point, that he was strongly disposed to believe that the partial union of the placentæ was the cause of the monstrosity.

3. The next paper read was on Tubercle, by Mr. Carmichael, of Dublin.

Mr. Carmichael commenced with some remarks upon the great prevalence of these formations, and then proceeded to detail their appearances according to the descriptions of Laennec and Carswell. He alluded to the use of the term Scrofula, which he considers a cloak for ignorance, and having stated that Drs. Todd, Clark and Carswell, believe in the identity of Scrofula and Tubercle, disputed this position, and likewise their opinion that tubercles are inorganic deposits. Among other objections, he urged the inconsistency of representing enlarged cervical glands and pulmonary tubercles as identical, since it is well known that the former may be injected, but not the latter;—and of maintaining the non-inflammatory origin of tubercles, together with the view that these bodies are lifeless matter; since, if such is their nature, they must excite inflammation in the tissues which contain them. He allows, however, that the scrofulous constitution disposes to Tubercle, but only in the same manner as to Cancer. Mr. C. next adverted to the generally recognised connexion between Scrofula and disordered digestion, and claimed the priority of this observation, by reference to a work which he published in 1810. He then proceeded to argue at considerable length in favour of the parasitic origin of tubercles, pointed out the absence of vascular communication between these bodies and surrounding parts, and observed that so long as the former retain their vitality, no inflammation takes place.

The author declared his opinion that Carcinoma must likewise be arranged among the Entozoa, and having indicated the division of a cancerous formation into a medullary and cartilaginous portion,—assigned to the former an independent vitality, the latter being only a barrier which nature sets up against the parasite,—and shewed that the containing cyst belongs to the surrounding tissue. The cartilaginous portion, he stated, might be injected, but not the medullary.

Tubercles he considers more allied to Carcinoma than to Scrofula. Having spoken of a difference between Fungus Medullaris and Fungus Hematodes, he proposed to arrange the formations which had passed under review as constituting four species of Entozoa. 1. Tubercles found in the lungs. 2. Tubercles found in the abdominal organs. 3. Fungus Medullaris and Hæmatodes. 4. Cancer.

Mr. Carmichael next considered the exciting causes of Tubercles, and concluded his paper by urging that practitioners must direct their attention rather to the prevention than to the cure of the disease; but allowed that improvement in the general habit may possibly, at the commencement of the disease, tend to its removal.

Dr. Macartney stated several reasons for his dissent from Mr. Carmichael's doctrine of the independent vitality of Tubercle. He considers that the vesicular appearance is confined to the lungs, and is owing to the deposit taking place around the bronchial cells. He also contended, that although tubercular matter itself is not vascular, each deposit is traversed by bands of cellular tissue which may be injected, and by which it is distinguished from a hydated vesicle. He recommended to the attention of anatomists his mode of displaying the vascularity of minute structures, by drying them on glass after having injected them.

Dr. Symonds objected to the manner in which the views of Dr. Carswell, Dr. Clark, and others, had been represented by Mr. Carmichael. They had not appeared to him to maintain the identity of Scrofula and Tubercle, but that they stood in the relation of cause and effect, or of *diathesis* and *disease*. Nor did those authors appear to him to have attributed an identical structure to tubercles in the lungs, and enlarged cervical glands; they had only shown that tuberculous matter is deposited in the tissue of the glands, and consequently that there is no difficulty in understanding why the latter may be injected, though mere tuberculous substance in the lungs, or elsewhere, cannot. Dr. S. urged, that as the form of tubercles in the lungs depended on the parts in which they were deposited, no argument could be drawn from so accidental a character in favour of the hydatical doctrine.

Wednesday.—1. Dr. Macartney read the second report of the Dublin Committee appointed to investigate the actions and sounds of the heart. In answer to the questions proposed in the resolutions of the Committee last year, they state that the contraction of the columnæ carneæ occurs at the same precise moment as that of the whole mass of the ventricle, and that the valves are not *tightened* by their contraction, but by the impulse of the blood during systole, although they are drawn towards the auriculo-ventricular axis by the first-mentioned cause. The experiments instituted by them to elucidate the causes of the sounds of the heart, brought them to the same results as have been detailed in the first report; and they suggest that the future investigation of the subject should be prosecuted rather by the observation of disease than by physiological experiments.

2. The report of the London Committee upon the same subject was next read by Dr. Clendinning.

Considering that each sound of the heart might have a single cause, or be the result of a combination of causes, the Committee began their investigations by enumerating all the causes which might be supposed to be concerned; and resolved to vary their experiments so as to exclude each of them in succession. The following is the result of their researches regarding the causes to which the first sound has been attributed:—1. *Valvular tension.* The action of the auriculo-ventricular valves may be prevented, without the sound being immediately diminished.—2. *Collisions of the particles of fluid* amongst themselves and against the sides of the heart. By experiments with a caoutchouc bottle, it was proved that this cannot be one of the causes of the *normal* first sound of the heart; but it appeared probable that it might contribute to the production of the bellows sound, if any obstruction were offered to the motion of the fluid.—3. *Impulse.* This is probably an accessory, but not the principal cause of the first sound.—4. *Muscular tension.* From various experiments it appears that this is the essential cause of the first sound. If a flexible ear tube be applied over the abdominal muscles, the sound of their contraction may be distinctly heard (being probably exaggerated by the cavity beneath), and appears to be of a *systolic* character. A sudden loud sound is heard during the contraction, and continues in a less degree as long as the contraction is kept up.

As to the second sound, the period at which the columnæ carneæ contract, and the cause of the tension of the valves, their conclusions are the same as those of the Dublin Committee.

3. A letter from Dr. Spittal, of Edinburgh, to the Secretary of the Section, was read, explaining the cause of no report having been furnished by the Edinburgh Committee.

4. A communication on the Mechanism of the Heart was read by Mr. Greaves, of Nottingham. The author endeavoured to show that the *external* spiral fibres of the ventricles, antagonize the *internal*, and produce active dilatation of the cavity, instead of the passive dilatation which is generally regarded as being produced by the relaxation of the muscular fibres, and the elasticity of the intermuscular tissue. He referred the mechanical phenomena of the heart's actions to a species of gyratory movement, compensated and regulated by the double spiral curves of the two great arteries, which he regards as acting like the balance spring of a watch.*

5. Dr. Roget read some observations on a singular developement of polarizing structure in the crystalline lens after death, communicated by Sir D. Brewster.

The object of the author of this paper was to institute a comparison between the changes produced by age in the polarizing structure of the crystalline lens of animals, with those changes which occur in the same organ after death, when the lens is allowed to indurate by exposure to the air, or is subjected to the continued action of an aqueous fluid, such as distilled water. With this view he examined the optical character of the coloured luminous rings which appear in consequence of the polarizing properties acquired by the lens under these circumstances. These phenomena he conceives to afford a satisfactory explanation of the changes in the lens which terminate in cataract, a disease which seems to be more prevalent now than in former times. In a letter addressed to Dr. Roget, Sir D. Brewster gave the history of the condition of his own eye, in which he accidentally observed appearances indicating the commencement of the process described in this paper, and detailed the plan which he adopted for counteracting the progress of this affection, by which the organ was restored to its natural and healthy state.

6. Dr. Carson, of Liverpool, then read a paper on Absorption. He arrives at the conclusion that absorption is effected by three sets of vessels;—that of nutritious matter by the *Lacteals* and *Lymphatics;*—and that of matter which has become useless in the system, by the *Veins*. He imagines that the arteries and veins communicate with each other throughout the system by means of cells, like those of erectile tissue, into which the terminations of each set of vessels open; and that the nutritious particles deposited by the arteries, displace those which have become useless, and which are taken up by the open mouths of the venous capillaries; and he believes that veins do not absorb by their parietes. Dr. C. entered into an extensive consideration of the manner in which the contents of the veins were conveyed to the heart, and of the changes which take place in the pulmonary vessels.

Thursday.—1. Dr. Hodgkin read a provisional Report of the Committee for investigating the connexion between Veins and Absorbents. As this report will appear in a complete form in the Transactions of the Association, we think it better not to give any abstract of it at present.

2. A communication on the Functions of Nervous Structure, was read by Dr. Reid, of Dublin. The principal object of this paper was to enforce the method of studying the nervous system under three divisions: viz. the Ganglionic, the Spinal, and the Cerebral systems. Dr. R. pointed out what he conceived to be the principal functions and province of each of these systems, and stated his opinion that all diseases should be arranged, and all remedies selected, according as the latter have their action directed to, and the former are found to affect one or other of these divisions of the nervous system in particular.

3. Mr. Broughton read a report by Dr. Marshall Hall and himself, on the Sensibility of the Glosso-Pharyngeal nerve. They had in a former report arrived at a negative result; viz. that this nerve does not endow the tongue with tactile sensibility or motion, which clearly depend on the fifth and seventh parts. They

[See Dr. Greaves's paper, p. 482, of this number.—Ed.]

now present their experimental researches in proof of the Glosso-Pharyngeal being the true nerve of taste, which completely accord with the observations of Panizza. Some facts in Comparative Anatomy were mentioned corroborative of their views.

4. A communication from Mr. Alcock, on some particulars in the Anatomy of the fifth pair, was read by Dr. Geogheghan.

5. Dr. Macartney presented an account of the organ of voice in the New Holland Ostrich. The peculiar *grunt-like* sound produced by the animal depends, as he has discovered, on the communication of the trachea with a large membranous cell placed under the skin of the neck; a formation peculiar to the animal, and common to both sexes.

6. Dr. Macartney next read a paper on the Pulps of the Teeth, and on Caries of these organs.

7. A communication from Dr. Montgomery, on a newly-discovered Peculiarity in the Structure of the Decidua, was then read by Dr. Geogheghan. The discovery announced in this paper was that of a number of small cuplike elevations on the uterine surface of the decidua uteri, which are found to be little bags, like the suckers of the cuttle-fish in minature, the bottoms of which are attached to or imbedded in the substance of the decidua; they then bulge out, and terminate by a contracted neck, leaving an open mouth when the membrane is separated from the uterus. They are most numerous at a distance from the placenta, and most evident in the very early period of gestation, before the placenta is formed as a distinct organ. Dr. M. suggests, from having occasionally found them to contain a chylous fluid, whether they may not be receptacles of nutrient matter separated from the maternal blood.

8. A paper on the Functions of the Muscles and Nerves of the Eyeball was read by Mr. Walker. The action of the oblique muscles of the eyeball was explained by the author as rotating the eye inwards, but by opposite rotatory movements; so that, if the eye were rotated in one direction by the action of one of these muscles, it would be returned to its former position by the action of its antagonist; while, if both muscles were in action together, there would be no rotation at all, but a direct drawing of the eye inwards. An explanation of the reason for the complicated muscular apparatus of the eyeball is afforded, in Mr. W.'s opinion, by a reference to the arrangement of the nerves. The distribution of the 3d nerve to the superior, internal, and inferior rectus, and to the inferior oblique, points out the association of these muscles in all corresponding motions of both eyes; and the two other nerves (the 4th and 6th,) with which the two remaining muscles are supplied are required for the direction of the eye outwards, whilst the other is turned inwards, as is the case whenever an object is viewed laterally.

Friday.—1. A communication was made on the Pathological Condition of the Bones in Chronic Rheumatism, by Mr. Adams, of Dublin. The various changes taking place in the extremities of the bones which constitute the joints chiefly attacked by this disease were minutely described, and illustrated by interesting specimens, casts, and drawings.

2. The Report of a Committee appointed in Dublin to pass opinion upon a case exhibited by Mr. Snow Harris to the section at the last meeting of the Association, was read by Dr. Evanson. The committee are decidedly of opinion that this interesting case was not one of fracture of the neck of the femur, as had been supposed, but an instance of the Morbus Coxæ Senilis.

3. Mr. Adams exhibited to the section a very splendid preparation of a case of double Popliteal Aneurism, illustrative of the changes which are produced on the circulation by the ligature of the femoral artery. In this instance the tube of the artery was continuous immediately above and below the situation where the ligature had been applied; and the anastomosing channels were very large. Mr. A. pointed out that the speedy restoration of the tube of the artery accounts for the secondary pulsation which often occurs within two or three days after the operation, until coagulation takes place in the sac. This occurrance has often caused alarm to the surgeon, but unnecessarily, since the cure of aneurism seems to depend rather upon the retardation of the current of blood than upon its total obstruction.

4. Mr. Hetling then exhibited a new instrument for the removal of ligatures

from arteries. He showed that, by the use of it when the ligature is applied, the thread may be afterwards cut at any time; and that all the inconveniences arising from the protracted retention of the ligature may be thus avoided.

5. A paper by Mr. Alcock was read, disproving the opinion of some physiologists that the sense of taste is dependent on nerves from the spheno-palatine ganglion, which may be considered a confirmation of the views stated in Mr. Broughton's paper of the preceding day.

6. Dr. R. T. Thomson read a paper on the chemical states of the digestive organs in health and disease. His observations did not appear to us to have led to any novel results.

7. Mr. Gordon exhibited some portions of a very beautiful and correct anatomical model of the human body, carved in ivory, upon which he has been engaged for many years.

8. Dr. Howell communicated a case in which a large portion of the ileum had been passed per anum, the patient surviving more than twelve months; it was illustrated by some interesting drawings.

After a concluding address from Mr. Broughton, (who had taken the chair in the absence of the Presidents and Vice-Presidents,) this section adjourned.

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45. *Mr. Crosse's Discoveries.*—The subject of greatest novelty and most exciting interest, brought before the British Association for the Advancement of Science at their meeting in Bristol, was unquestionably the brilliant discoveries and experiments of Mr. Crosse, of Broomfield, Quantock Hills, Somersetshire, England. Mr. C. has devoted much of his time to electricity, and has latterly been occupied in improvements in the voltaic power, by which he has succeeded in keeping it in full force for twelve months by water alone, rejecting acids entirely. Mr. C. having obtained water from a cave at Holway remarkable for its fine crystals, succeeded by the action of his voltaic battery in producing from this water, in the course of ten days, numerous rhomboidal crystals, resembling those of the cave. These experiments were made in the light, and in order to ascertain what influence light exerted in the process, he repeated the experiment in a dark cellar, when similar crystals were produced in six days with one-fourth the voltaic power. Mr. C. has repeated these experiments a hundred times, and always met with the same results. Mr. C. is fully convinced that it is possible to make diamonds, and that at no distant period every kind of mineral will be formed by the ingenuity of man. By a variation of his experiments he has obtained gray and blue carbonate of copper, phosphate of soda, and 20 or 30 other specimens.

Sir Richard Phillips, in an account of a visit to Mr. C. since the Bristol meeting, gives the following account of the latter gentleman's apparatus for collecting atmospheric electricity:

"But Mr. Crosse's greatest electrical curiosity was his apparatus for measuring, collecting, and operating with, atmospheric electricity. He collects it by wires, of the 16th of an inch, extended from elevated poles to poles, or from trees to trees, in his grounds and park. The wires are insulated by means of glass tubes well contrived for the purpose. At present he has about a quarter of a mile of wire spread abroad, and in general about the third of a mile.

"The wires are connected with an apparatus in a window of his organ gallery, which may be detached at pleasure, when too violent, by simply turning an insulated lever; but in moderate strength it may be conducted to a ball suspended over the great battery, which, connected with it, is charged rapidly, and is then discharged by means of an universal discharger. He told me that sometimes the current was so great as to charge and discharge the great battery 20 times in a minute, with reports as loud as cannon, which, being continuous, were so terrible to strangers that they always fled, while every one expected the destruction of himself and premises. He was, however, he said, used to it, and knew how to manage and control it; but when it got into a passion, he coolly turned his insulating lever, and conducted the lightning into the ground. It was a damp day, and we regretted that our courage could not be put to the test."

AMERICAN INTELLIGENCE.

Congenital Encephalocele, with Remarks. By F. H. Hamilton, M. D.—Mary G——, born July 29, 1835; healthy and well featured, except that she has what Naegle has termed an "encephalocele congenital," and which he states "occurs oftenest at the posterior fontanelle," the exact place where this presents. It protrudes two or three inches, and has a base of four inches in diameter, giving a great elongation and enlargement to the occipital region. The edges of the several bones forming the fontanelle, and over which the circumference of the tumour rests, are everted. Tumour soft and pulsating; yields slowly on pressure; not discoloured.

August 11*th*. Child has ophthalmia purulenta. Tumour not diminished.

14*th*. Epileptic fits from excessive dose of anodyne; tumour increasing; bones not everted. ℞. cathartic enema, etc.

June 14, 1836. Since last note, until very recently, the patient has been almost uniformly well; full size, but rather emaciated; playful; learning to talk; intellect evidently precocious; has had a few days past diarrhœa lienteria. ℞. tonic and anodyne.

15*th*. Diarrhœa abated; quite feeble; slight convulsive movements; cough, etc.

16*th*. Increase of yesterday's symptoms; preternatural heat of head; determined, on consultation, to perform Paracentesis capitis to-morrow. The parents being apprised of the state of the case, and fully advised as to the doubtful prospect afforded by the operation for a perfect or even a partial cure, beg that it be not delayed. Head measures in its longest circumference 23½ inches; in its shortest, from ear to ear, 15½.

19*th*. *Operation.*—The parietal bones being firmly compressed by the hands of a cautious assistant, the palm of my left hand resting against the posterior fontanelle, I introduced a small sized trocar with canula into right side of anterior fontanelle, near the angle formed by the junction of the parietal and frontal bones; first in a direction perpendicular to the skull half an inch, then, to insure its complete entrance, I pushed the instrument in a direction forwards three-fourths of an inch. Withdrawing the trocar, the water flowed in a slow stream quite two minutes, when ℥ij. of serum, mixed with a few drops of blood, had been discharged. The child manifested no signs of cerebral irritation. A roller was now applied and the wound closed, with the intention of reopening it soon if no unfavourable symptoms supervened. Four hours after, the child having slept and nursed, and appearing well, the wound was unclosed, and the water allowed to escape stillicidium.

18*th*. Serum constantly discharging; roller been tightened three times; transverse diameter of head evidently diminished; child playful; pulse 115. ℞. sub. mur. hyd. gr. 1-4; digit. purp. gr. 1-8; ant. tart. gr. 1-16 at 8 hours.

19*th*. Stillicidium continues; no change of symptoms; stools natural. Continue yesterday's prescription.

20*th*. Powders nauseate; had several spasms this morning at 8, only in *right* side, continued two hours; pulse 130; stools green; serum accumulates more rapidly than it escapes; head enlarging. Loosen roller; open wound more freely with probe; does not mind the probing. ℞. sup. carb. sod. grs. ij.; Dov. p. gr. j.; sub. mur. hyd. gr. 1-8 at 6 hours.

21*st*. Stools improved; nurses and seems playful; wound discharges copiously, pillows often wet through; discharge estimated equal to ℥viij. in 24 hours; very little diminution of head since the 19th. Continue treatment.

22*nd*. Return of spasms in *right* side at 3 A. M. Stools green; groans much; cough; discharge continues; ordered to keep open wound freely, as she is more easy when the discharge is abundant. ℞. ipecac. pulv.; sub. mur. hyd. *aa*. gr. 1-8; sup. carb. sod. grs. ij. at 6 hours.

23*d*. Fæcal evacuations more natural. Suspend powders.

24*th*. Last night at 11 the spasms returned, making the third time they have recurred at regular intervals of nearly 48 hours; each successive paroxysm anticipating the preceding by 4 or 5 hours; evacuations slimy, thin and green. ℞. Dov. p. gr. j.; ipecac. pulv. gr. 1-8 at 4 hours.

25*th*. At about 5 this morning, immediately after having nursed and being laid down, a current of limpid water commenced flowing from her mouth, pleno rivo; a profuse clammy perspiration broke out at same moment, drenching all her clothes, and a succession of slight quivers were observed to pass rapidly through her frame. Taking her up, her diaper was found dirty and wet; two more stools immediately occurred, and she again urinated. The pulse was scarcely perceptible, and too rapid to count; head and extremities cold, particularly the right arm. In the course of twenty minutes the fontanelles, before full, became depressed three-fourths of an inch. From this state she gradually revived without medical aid, and is now, 10 A. M., quite easy and free from cough, which has been hitherto very troublesome. ℞. brandy gtta. ij. at half hour.

From this time until her death, which occurred on the 3d of July, very little of interest presented. The spasms continued to return at the same intervals, and invariably in the *right* side, until the day preceding her death, when, having nearly spent their force in a very protracted paroxysm on the *right* side, they suddenly attacked the *left* with such violence as to threaten immediate dissolution. After the singular phenomena on the 25th, the water accumulated in the head much more slowly, and the discharge greatly diminished. The pupils were at no time insensible to the stimulus of light.

Autopsy, twenty-four hours after death.—General emaciation of body. Greatest circumference of head 22½ inches; smallest, from ear to ear, 14½. Length of posterior fontanelle, antero posteriorly, 6½ inches; length of anterior, 3¾. Fontanelles much depressed; parietal bones overlapping. No marks of inflammation about the wound externally. Carrying up the integuments and occipito-frontalis muscle together, the tendon of the latter was found firmly adherent to the pericranium on the posterior part of right parietal bone. In upper part of posterior bregma lay five ossa triquetra, varying from ¼ to 1½ inches in diameter, very thin and flexible. To ascertain whether it would have been practicable to have discharged the water and approximate the bones more than already done, the parietal bones having met on the third day, but the occipital being yet widely separated from them, I punctured the posterior fontanelle and discharged 1 pint and ¾, composed chiefly of a bluish-yellow serum, and partly of thin pus, light straw-coloured and inodorous. I then attempted to bend the occipital towards the parietal bones, but no force short of what was sufficient to produce a fracture would effect an approximation of half an inch. The frontal and parietal bones offered the same resistance, being firmly united to the other cranial bones at their base. Removing the calvarium, with dura mater adherent, no trace of inflammation could be discovered in the vicinity of the wound made by the trocar—no congestion, adhesion, lymph, nor pus. The wound had not penetrated the tunica arachnoidea. The superior longitudinal sinus passed entirely on the left side, and where it crossed the posterior fontanelle it lay one inch from the mesian line. Much serum, with loose gelatinous matter, lay between the dura mater and arachnoid membrane. The arachnoid of the right hemisphere retained its natural appearance and situation; over the left it formed a large bleb, or sac, thickened and opaque, and raised to a level with the opposite hemisphere. The sac, when opened, discharged a large quantity of clear

serum, and exposed a surface covered only by the pia mater, and sunk two inches below the level of the corresponding hemisphere; the deficiency existing in front as low as the centrum ovale proper, and in rear as low as the posterior horn of the left lateral ventricle, which horn was entirely laid open, its floor forming a part of the depressed surface. The face of this portion of brain was much more rough and vascular than natural, appearing somewhat like the large fungous growths of hernia cerebri; and its edges suddenly caved in, like the margin of an ill-conditioned ulcer. The cortical substance over most of this surface retained its usual thickness, except where the ventricle was exposed, the deficiency being more in the medullary than cortical substance. The ventricles all enormously distended; their parietes smooth, shining, and unusually hard—the fourth alone contained serum, mixed with lymph; the others were emptied in the first incision of the arachnoid sac. The foramen of Munro ⅜ of an inch in diameter, and the thalami separated. The plexus choroides gorged; the hyppocampi lost in the extension of the floor of the ventricle; the pineal gland involved in a mesh of the velum interpositum and organized fibrin; the tubercula flattened. The right lobe of the cerebellum natural, the left hypertrophied; the medulla oblongata invested with loose lymph. The entire substance of brain more or less clotted with turgid vessels, and unusually hard. Accurate weight of brain with meninges, serum drained off, 12980 grs.

Remarks.—Whatever difference of opinion may exist with regard to the essential or proximate cause of chronic hydrocephalus in general, we presume no one will doubt it to have been in *the present case* cerebral irritation. The congenital encephalocele first described, the exuberant growth of the cranial bones, the hypertrophy discovered on dissection, the serum, the lymph, the gorged vessels, and hardened cerebral structure, are all confirmative evidences of the existence of a previously unnatural excitement in the encephalic vessels. From notes of seven autopsic examinations of hydrocephalic heads which we have witnessed, four of which were chronic, the same inferences are obtained; and from the numerous cases reported by others, whose observation has been much more extensive, we find no reasons to authorize a different judgment with regard to the proximate cause of the effusion. We are not at all an advocate of exclusive doctrines—neither do we hold that pathological investigations are the *invariable* tests of correct theory—and yet the doctrine of irritation, as applied to the disease under consideration, we affirm to be alone correct; because pathology only fails as the *invariable* guide to correct theory, when discrepant phenomena are presented in the examination of different specimens of the same disease: a discrepancy which, in our opinion, has never occurred in reference to chronic hydrocephalus. No *positive* proofs of cerebral debility have ever been shown from cadaveric inspections, but the *negative* evidence alone of an occasional absence of inflammatory signs, which merely implies that previous to dissolution, and *in articulo mortis*, no lesion had yet occurred, and the vessels were in a normal state of fulness—a condition which every pathologist knows to be perfectly consistent with a previously excited and turgid condition of the circulatory system. We therefore assert that we are *not at liberty* to discredit our own doctrine, until the advocates of a different one, rest their opinions upon something more solid than the mere *negative* proofs afforded by pathological inspections. If they retreat from these open grounds of demonstrative facts and fall back upon their reserve, *the result of practice*, we leave them—they are retreating into a fog of mysticism. The well attested fact that stimulants remove dropsical effusions we concede, and also claim as the result of equal experience the doctrine of the pyretologists, that stimulants abate inflammatory action. We even acknowledge that arachnoid effusion may be hastened by depletion; and yet we *know* it to be more certainly promoted by stimulation. How shall we conciliate such discrepancies? We reply—by pathology, and not by practice. The tests of the former are generally uniform—of the latter,

always various and uncertain. The application of the argument to the case under notice is plain—*dissimilar* causes have produced *similar* results. The actual pathological conditions are the same in either case, viz. an excited condition of the capillaries—the one is the result of direct stimulation, the other of indirect. In the latter case an irregular irritative action has resulted like that which occurs in hectic, and which may determine to one or another organ, according as this or that may be predisposed.

We might go farther in unfolding the discrepancies of results of practice, and still more clearly expose the fallacy of erecting a theory upon these alone. We might also give in more minute detail our particular views and doctrines, and by a laboured exegesis establish their correctness to a demonstration, but we have no claim to attention, and must leave such discussions to "older heads and better stored." The remaining inferences fairly deducible from the above case, are:

1st. That the operation hastened the death of the child.

2nd. That it was performed under an accumulation of unfavourable circumstances, viz. deficiency of a large portion of cerebral substance, an excessive hypertrophy of other parts, and also an exuberant growth of the cranial bones, their size and perfect union at the base of the skull effectually preventing any considerable degree of approximation, and therefore not affording the brain a sufficient degree of support and compression.

3d. That the result of this case affords no argument against the future performance of the same operation under more favourable circumstances.

4th. That the operation is most likely to succeed when performed early, and that it never can succeed when either of the above conditions exist.

5th. That the water should be discharged gradually, and that the establishment of a *fistulous opening* is feasible and judicious, allowing, when the external pressure is properly applied, a more steady and uniform approximation than can be obtained by any other mode.

6th. That the puncture should be made in the anterior fontanelle, and as far from the mesian line as possible—it being uncertain whether the superior longitudinal sinus holds its accustomed course, or may strike to the one side or the other, as in the above case.

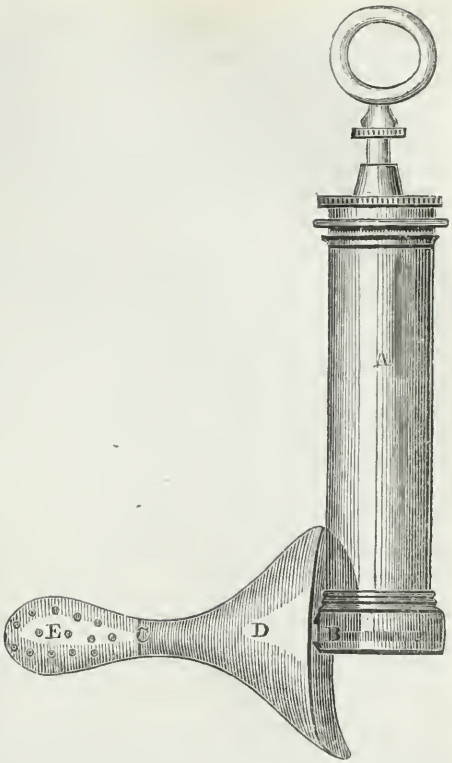
Auburn, N. Y., July, 1835.

Improved Female Syringe. By Heber Chase, M. D.—The superiority which this instrument possesses, consists in its perfect adaptation to the anatomical form of the external organs of generation.

A, the cylinder, is about five inches in length, with a calibre of one inch. Projecting from its lower extremity, *B*, at an angle of about eighty-five degrees, is a tube of one inch and a half in length, and six lines in diameter, terminating at *C* by a male screw in the shield *D*, now to be described.

The shield is of a conoid form, produced considerably near the truncated summit, and laterally compressed; about four inches in length, half an inch in diameter at the apex, and has about three inches vertical and two inches transverse diameter at its base. The superior extremity of the vertical diameter rests against the cylinder of the instrument, while the inferior extremity is carried backwards and downwards so as to press on the perinæum a few lines posteriorly.

Upon the extremity of this shield is placed an ivory tube, *E*, extending one-third of its whole length. This tube, from its connexion with the shield at *C*, is gradually increased towards its extremity, and terminates with a diameter of ten lines, where it is perforated by from twelve to fifteen holes all around its bulbous extremity. The ivory tube may be removed from the shield at *C*, where it is attached by means of a screw. The shield itself may be removed from the instrument in the same manner, and at nearly the same point.



Directions for use.—The bulbous extremity of the instrument should be introduced into the vagina and carried backwards and upwards nearly or quite to the os uteri, the base of the shield closing the vagina at its orifice. When the contents of the syringe are thrown into the vagina, the fluid, of whatsoever nature, is projected not only against and around the os uteri, but cleanses also, by means of the numerous orifices in the bulb, the other parts of the canal, while the shield prevents its escape.

The advantages arising from such a combination of parts in this instrument will be seen at a glance by the practitioner; and, aside from the good resulting from keeping the organs in a cleanly state, great advantage will be derived in disease of those parts by the use of medicinal liquids, which can be thus applied with sufficient force to reach all parts with certainty.

There is evidently a want of attention on the part of females in the middle and lower walks of life to keeping the urino-genital organs in a healthy, clean state; and there can be little doubt that prolapsus of the uterus, of the first and second degree, may take place from this inattention, as the organ is often restored to its pristine state by rest, frequent ablutions, and the daily removal of those viscid secretions which must have more or less influence in debilitating the parts. With these precautions, and the use of cold and stimulating injections, the vagina resumes its tone, and the uterus again receives proper support.

The syringe is made of the usual material, (pewter,) with the exception of the bulbous extremity of the shield, which, as before stated, is of ivory. In manufacturing the instrument, care should be taken that the shield be highly finished, and the holes in the bulbous extremity be made smooth, so that no friction upon the internal parts may follow its use. Ivory is far preferable to bone or other substances for forming the bulb, from the facility with which it may be polished.

Aneurism of the external iliac artery—ligature to this artery—death. By J. C. Warren, M. D. Prof. of Anat. and Surg. in Harvard Univ. Boston.

"J. T. aged 56, paper maker. Patient's health has not been good for the last two or three years: has suffered a great deal from rheumatism, often of sufficient severity to confine him to the house, and sometimes to his bed. For the last twenty years of his life has lived high, and been in the free use of ardent spirits.

"Between three and four months since, he first perceived a small hard tumour in the left groin, which appeared to him to be an enlargement of one of the glands of that part, or as he expressed it, a "kernel in the groin." Shortly after the appearance of this tumour, the foot of the same side commenced to swell, followed by a swelling of the leg, and finally of the thigh. As soon as the swelling had reached the thigh, which was about three weeks since, the tumour began immediately to increase, and has gone on rapidly augmenting in size since.

"Until within the last three weeks, the patient has suffered but little pain: but as soon as the tumour commenced enlarging, the pain became severe. This, together with the swelling, has finally almost prevented any motion being made with the limb of the affected side.

"The patient's profession, as stated above, was that of paper making, and this he has followed for many years. His occupation, which was very laborious, required him to stand for a great part of the day, the thighs strongly pressed against the board on which he works—and the body in this position alternately flexed and extended. From this exercise the patient states the thighs, near the groin, have often become so much excoriated as to oblige him to relinquish work.

"The patient having been admitted into the hospital on the evening of the 3d inst., I was requested to see him on the morning of the 4th, in company with Dr. Hayward, Dr. Lewis, and some other medical gentlemen. On examination, we found him to be in a febrile state, without appetite, with much pain, and a hard swelling of the whole thigh below the affected part. The tumour rose in the cavity of the abdomen, as high as the anterior superior spinous process of the ilium, and extended downwards between two and three inches below the groin, being seven inches in length from above downwards, and six inches and a half in breadth—across from the anterior superior spine of the ilium to the symphisis pubis. The patient, although but fifty-six years old, had the aspect of an aged person. His hair was gray, skin shrivelled, radial arteries ossified at the wrist. Considering the diseased condition of the patient, the habit he had long had of using ardent spirits, the size and elevation of the tumour and the thinness of its coats, my impression was unfavourable to attempting an operation. After some hours consideration, perceiving that the case must terminate fatally in a short time without operation, it seemed necessary to attempt something, unless it was thought otherwise by competent judges. As the tumour was perceived to have increased within twenty-four hours, and the patient was failing, it was obvious that no delay could be allowed; and therefore a meeting of the consulting surgeons was called for the day following. At this consultation Dr. Hayward and Dr. Townsend attended, with Dr. Perkins of N. Y., and other practitioners. These gentlemen were of opinion, that although the case was every way unpromising, and that it might in operation present insuperable difficulties, yet as the patient must soon expire without, an operation would be proper.

"The principal objections to an operation were these three. 1. That the height of the sac would prevent access to the external or primitive iliac. 2. That the sac might be ruptured or cut in the attempt. 3. That even though the operation might be favourably executed, the patient would sink in the same manner as those in the habit of using ardent spirits usually do after meeting with accidents or undergoing operations.

"It being concluded to attempt to save him, notwithstanding these objections, the operation was fixed for the following day, that no time might be lost. The operation was performed in presence of the medical class, and of most of the profession who are interested in surgery, to whom the objections to the operation were previously stated. The patient, placed on a table, was a little inclined to the sound side, to remove the pressure of the intestines from the side affected. An incision four inches long was made from an inch in front of the anterior superior spinous process of the ilium, obliquely upwards and outwards. This incision was only half the length of that made by Dr. Mott in a similar case; his incision being eight inches long, extending upwards from about the abdominal ring. Mr. Crampton's was seven inches long. But in this case only four inches could be obtained, on account of the height of the tumour. The lower angle of the incision was over the top of the aneurismal sac. The muscles were so *drawn in* and *indurated*, from the peculiar state of the system, that this incision was not

accomplished with facility. The skin being divided, the tendon of the external oblique muscle was cut through; then the internal oblique, and then the transversalis. Startings, strong involuntary contractions, and great suffering, accompanied this dissection. The transversalis muscle having been carefully raised, its fascia was discovered unusually thick and strong; an aperture was made in it, and a director introduced, allowed it to be safely dilated the extent of the wound, thus exposing the peritoneum for about two and a half inches, which was all the room that could possibly be gained. The small size of the wound seemed to present an insuperable difficulty in reaching and acting on the diseased artery. However, the peritoneum was raised in the upper part of the iliac fossa with the forefinger of the right hand, and then gliding the finger over the top of the aneurismal sac, the great artery was distinctly felt.

"Thus far the operation was very satisfactory, and was accomplished in a short time. But now the excessive rigidity of the muscles arising from their spastic state, together with the necessary smallness of the wound and its depth, presented great difficulties. However, I was able to free the fore part of the artery from peritoneum and cellular texture, and then a long director passed behind the vessel opened the back part of the sheath. An aneurism needle was then introduced behind the vessel; but, for the reasons already stated, there was not room for the finger to reach, much less to seize the ligature. Then a larger aneurism needle, with a moveable eye, was introduced; but the length of the eyed part made it difficult to carry it round the artery and bring it out on the other side; and the depth made it impossible to seize it with the finger. By means of a dressing forceps, the eye was secured and brought out with the ligature. The ligature was then tied and carried down to the artery; but the patient expressed great pain, and continued in pain for two or three minutes, when it subsided, and he was tranquil. Notwithstanding I had separated the artery with the greatest care, this appearance alarmed me, and I concluded there must be some nerve included in the ligature. What was to be done? I saw nothing practicable but to enlarge the opening downwards over the aneurism, at the risk of wounding the latter, in order that the artery should be more fully examined. This appeared the more justifiable, as the ligature already on the vessel would prevent a hæmorrhage from the artery if the sac was wounded. With a finger of the left hand placed on the sac, a probe-pointed bistoury was applied to the tendon of the external oblique. No sooner was this removed, than a gush of blood from the sac took place. Compressing this with the finger, the flow was at once arrested. Then substituting the finger of an assistant, the wound having been enlarged, I reached the vessel, and passed another ligature and tied it. The pain now exhibited was still considerable, and obviously more than usual on tying a sound artery. But there was now an additional certainty that this extraordinary suffering was produced not by a nerve having been tied, but by the extraordinary sensibility of the diseased artery;—a phenomenon new to me; for although the pain in tying arteries is often severe, nothing like this had been witnessed before. The morbid state of the vessel in this instance could alone explain this startling phenomenon; and its occurrence may serve to guide other operators in similar circumstances, and prevent the existence of an apprehension which would cause great anxiety. The wound was then dressed. No bleeding of any consequence occurred, but that from the tumour, after the ligature was on the artery; and no blood was lost from the patient's system in consequence of opening the sac, as the first ligature being still tight, prevented any flow of blood from the artery into the aneurismal tumour.

"The patient had a good pulse after the operation, and in the afternoon was cheerful, and made some jokes on his loud complaints during the operation. The limb was warm.

"On the day following, he was found vomiting, from drinking too much, and was still very clamorous for drink, with decided marks of delirium tremens. He was directed to moderate his drink, to take opium to allay the vomiting, and a sinapism was applied to the epigastrium. On the afternoon of the same day, he had slept. The vomiting had ceased. He was more tranquil, but feeble. The night following he continued to call for drink, with violent threats directed to his attendant, and eventually contrived to slip out of bed, and took a good drink of water before his course could be arrested. To what extent he used the affected limb, is impossible to ascertain; but it is certain that he got to a table at the dis-

tance of three or four feet, and was with difficulty prevailed on to go to bed. On the following morning I found him vomiting and much prostrated, yet demanding drink and food. In the course of the day he became gradually weaker, and died towards evening.

"The body was examined a few hours after death, and presented the following appearances.

"The general aspect of the subject was neither fat nor the reverse. The cellular texture was lax and quite watery. The heart strongly contracted, the left ventricle being quite hard. The aorta very much enlarged at its origin, and ossified throughout its course. It could readily be cut, but with the sound of cutting through flakes of bone. The semilunar valves were much ossified. The lungs adhered closely to the ribs, and their lobes to each other. The mucous membrane of the bronchiæ was inflamed and thickened. The longitudinal fibres of its muscular coat strongly marked, and even the circular fibres visible at some points.

"The stomach was large, and contained a quantity of liquid. The coat of the liver opaque. The intestines healthy. A very slight blush appeared at some parts of the small intestines, but none near the wound. The peritoneum was entire; was well raised from the artery, and had no mark of inflammation or gangrene. The aneurismal tumour occupied the lower part of the cavity of the abdomen on the left side, as high as the anterior superior spinous process of the ilium, whence it extended inwards to the cavity of the pelvis, compressing the bladder, the sigmoid flexure of the colon, and the rectum, which explained a retention of urine to which he had lately been subject. There were four distinct processes or prolongations of the tumour. One extended under the crural arch down the thigh, and occupied its upper part to the bone. A second rose on the inside of the iliac artery, through the cavity of the pelvis, opposite to where the ligature was applied. A third lay over the vessel, and extended from its anterior face to its outer edges, between the artery and the wound. The fourth made a hernia through the internal oblique and transversalis muscles, came in contact with and adhered to the tendon of the external oblique, close to the spinous process of the ilium. This had a neck which was girt by the fibres of the internal oblique and transversalis, as a hernia is sometimes by the lower edge of these muscles; but here the muscular girt was thick and strong. It was at this part, between the external and internal oblique muscles, that the sac was opened. The aneurismal sac was generally very thin and weak, so that the bulb of a probe readily penetrated it. The ligature was on the artery, and nothing included but the artery; and there was no nerve nearer the vessel than the external pudic, which descends through the edge of the iliac fossa. The place of the ligature was exactly two inches below the bifurcation of the aorta, as the parts lay, and two and a half inches when the aorta was forcibly drawn upwards; for the arteries were tortuous, as they usually are in subjects who have been long in the free use of ardent spirits, and the coats of the artery inflamed and filled with small vessels. The aorta and both iliacs, and their divisions, were greatly enlarged, thickened, and partially ossified. Between the ligature and aneurismal sac, there was a coagulum in the artery, and another above the ligature. The common iliac was only three quarters of an inch long; so that the space between the ligature and the division of the iliacs, was one inch and a quarter. From the point where the ligature was applied, to the anterior spinous process, the distance was four inches and a half, and the thickness of the skin and muscles made the whole depth of the wound five inches. The space from the ribs to the spinous process was only three inches and a half. The lymphatic glands of the groin had been pushed up by the tumour, and lay on the outer edge of the iliac artery. The epigastric artery was adherent to the anterior face of the sac."

"*Remarks.*—The great improvements in the treatment of diseases of the arteries, within the last thirty years, have been founded on operations apparently of a hopeless nature. When a disease seems to be past the reach of the restorative powers of the constitution, the surgeon is justified in attempting operations which present but little hope of success. These considerations will, I trust, be thought sufficient to justify an operation undertaken with so many unfavourable circumstances as this. The publication of such cases ought not to be withheld, because their termination is not favourable; for cases presenting great difficulties are

quite as instructive as those done with facility. It is a high professional duty to make known the history of such cases for general information; and it seems too, to be a piece of respect due to those who attend an operation where the essential part is concealed from the eye of spectators, to explain to them the course it took, and the difficulties it presented. This operation, as already stated, was undertaken with reluctance, on account of the bad condition of the patient from the long and excessive use of ardent spirits. Moreover he was in a very low state; and his disease promised to offer great difficulties and dangers. The anticipated difficulties turned out to be such as were expected; but in addition to these, others presented, which were extraordinary, and were not anticipated.

"The course of this operation was very satisfactory to the point where the artery was discovered; and it was executed in a short time. At the moment the difficulties seemed to be overcome, they presented in their full force. The dissection of the muscles, the raising of the fascia transversalis, the pealing up of the peritoneum, were accomplished with comparative facility. It was not till the aneurism needle was passed to the further side of the artery, that it was found impracticable to discover the ligature by the touch. The substitution of an instrument with a moveable point seemed to promise that this impediment would be overcome: but the length of the curve of the needle made it most difficult to turn it without the aid of the finger, and this was not sufficiently long to favour this manœuvre. The depth of the wound was five inches. The greatest room which could be gained externally was less than three; and this was diminished by the active muscular contraction which occurred. It might be thought that by some contrivance more room might be gained. But this was not possible. The incision was found to be exactly in the most favourable place. It extended obliquely from the edge of the ribs to the aneurismal tumour, and even over the tumour. Room, then, could not be gained upwards, on account of the ribs, nor would it have been of any use in that direction. Downwards, the incision could go no further, for it reached the sac. A cross incision inwards would have come on the intestines; and besides, would have made a breach in the abdominal parietes which could not have been healed. The ligature was at length passed by seizing the moveable point of an aneurismal needle with dressing forceps. To discover this point under the intestines, within the psoas muscle, was an affair of great difficulty, on account of the stiffness of the muscles, which prevented turning the internal end of the forceps sufficiently downwards. When the ligature was safely drawn out, a new embarrassment was caused by the complaints of the patient on tying it; for although there was the most perfect evidence the nature of the case permitted that nothing was included therein but the artery, the appearance was too striking to justify an operator in allowing the ligature to remain under such circumstances without further examination. Having this ligature on the vessel, it was thought justifiable to cut the tendon of the external oblique muscle over the aneurismal tumour. The finger being placed on the top of the tumour, and the internal oblique and transversalis muscles being supposed to cover its face, such an incision appeared safe; but in doing this, the sac was wounded, by reason of the extraordinary hernia the sac had made through these muscles. This, though it had a formidable aspect at the instant, was of no moment, for the ligature on the artery being still tight, prevented a drop of blood issuing, excepting from the sac. The discharge of blood from the sac lessened the prominence of the tumour, and the cut of the tendon made sufficient room to feel the artery more fully, to pass another ligature higher than the first, and to relax the lower, which had only a single knot. The place where the ligature was applied was two inches below the bifurcation of the aorta; and as the primitive iliac is usually more than two inches long, it was supposed the ligature was on the primitive iliac. It appeared, however, that from the shortness of this artery, the ligature was in fact applied below the division of the vessel. This would be considered as a favourable occurrence, because the limb would have the important advantage of a supply from the internal iliac. The ligature was applied as high, however, as it would be in ordinary cases, in tying the common iliac artery. The iliac vein caused no embarrassment. It was not even distinguished during the operation. The ureter was safely raised with the peritoneum, and was not sensible to the touch.

"The hæmorrhage during the operation was very slight, excepting what arose

from the sac; but, as has been already stated, this had no unfavourable influence on the patient's strength, as the blood was arrested in its course through the artery by the temporary application of the first ligature; and the patient did not die of exhaustion, but from constitutional sympathy, as frequently happens after great operations and other considerable lesions.

"A question arises whether it might not be possible to construct an instrument which would reach and surround an artery at the depth of five inches from the surface. In many cases I think there would be no great difficulty in constructing an instrument applicable under such circumstances. In a case like this related, it would probably be impracticable to devise any instrument which would pass easily, without loss of time, and without violence to the important parts exposed. The depth of the wound, the narrowness of its aperture, the contracted state of the muscles, the interference of the aneurism, the position of the artery within the edge of the psoas, seemed to present obstacles not to be surmounted without an effort dangerous to the peritoneum and to the natural attachments of the artery. Let it be understood that the exposing an artery, and the passing a ligature on it, are quite different affairs. Many times we can reach and touch an artery with ease, which it would be very difficult to girt with a ligature;—for the reaching and exposing a deep artery may be done by a single finger; but something more is required to raise, encircle, and bring out from it a ligature. If I were to operate on a similar case, I should employ an instrument eight inches long, with a curve which might be subtended by a straight line not over an inch long, with a moveable point not more than a quarter of an inch, fixed in a socket and capable of being disengaged by a spring. Such an instrument it is my intention to have constructed. To bring it out, I should be obliged to rely on a long dressing forceps, made with flat blades and a rounded extremity. The instrument of Savigny would not answer in such a case as the above. It is not long enough, and the extremity of the moveable blade would endanger the peritoneum, and would become entangled in the cellular membrane.

"The history of this case will appear long to all, but those who may have occasion to do a similar operation. To such, the details will seem defective rather than redundant. Operations on the great arteries are more susceptible of fixed rules than many other manipulations practised on the human frame; yet they are of all operations the most delicate, the most dangerous, the most dependent on a precise anatomical science, and on a practical acquaintance with such operations on the living subject. While we duly estimate these circumstances, we must take into view, as an encouraging fact, that many such operations are successful. It has fallen to my lot to operate for aneurisms on most of the large arteries—on some of them a number of times; and the results have been favourable in every instance previous to this, with a single exception. This exception occurred in the case of a ligature of the lower part of the external iliac in a coachman, who was, like the subject we have spoken of, notorious for the use of ardent spirits. He died of inflammation of the intestines, owing to his bad habits and to the quantity of blood thrown suddenly on the intestines by the ligature of the iliac; the peritoneum near the wound not being inflamed nor injured. In the ligatures of a great number of the large arteries for wounds, no one instance has occurred to me of an unfavourable termination following from the effects of the operation itself."

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Case of Protracted Croup, successfully treated with unusually large doses of Tartar Emetic and Ipecacuanha.—We were strongly inclined when we first read the case of which the preceding is the caption, to look upon it as a joke. It certainly might be considered as a palpable hit at the extravagant doses of medicines administered by a western professor;* and if the patient had only been represented as occasionally nourished by the effluvium from the billionth part of a crumb of bread, the two medical extravagancies of the day would have been embraced in the same caricature. As we find this case, however, ushered forth as the leading article of a number of a cotemporary, (*The Boston Medical and Surgical Journal*) and related in a tone of sober earnestness, we must conclude that our first impression was erroneous, and we therefore transfer it to our pages as interesting in a

* See Vol. VIII. p. 258, of this Journal.

medico-legal point of view, confirming the statement of Christison as to the uncertainty of tartar emetic in its action as a poison.

"The subject of the following case was a male infant, ætat about nineteen months, and uncommonly healthy (and well grown) anterior to this attack. I learnt from the parents of the child, upon my arrival, that it had been ill something like forty-eight hours; and for the last eighteen seemed to be dying. My investigation of the case, disclosed the discouraging facts, that a profound stupor, increasing coldness, and lividness of the extremities, had existed about eighteen hours. At this time these appearances were most strikingly manifest, attended with a dilated state of the pupils—the eyes half closed, and the corneæ dry, corrugated, and incrusted, in consequence of their long and constant exposure to the atmosphere. Respiration was performed with the greatest difficulty;—a most appalling and horrific stridula suffocatio incessantly vibrated in the ear, and its discordant notes were the more distressing, from being emitted through a patulous mouth, which had been constantly open from the commencement of the coma. The pulses at the wrists had very nearly become quiescent, and only gave evidence that life had not entirely abandoned these processes of the circulatory system, by a thready and barely perceptible pulsatory vibration. All attempts to arouse the child, even for a moment, were utterly fruitless; it lay with its head, hands and feet perfectly motionless, and with the most entire relaxation of their sustaining muscles. Deglutition was performed with very great difficulty; indeed, every attempt to excite the effort, by presenting ordinary liquids, threatened suffocation. The tongue and fauces had become dry in the extreme, and the former greatly contracted in size, presenting a pale, cold, and shrivelled appearance, from breathing with the mouth constantly open for so long a time.

"It was not remarkable, that under circumstances so unfavourable, I should have hesitated for more than half an hour, after my arrival, before I would consent to do more than examine and observe the progress of the symptoms. Becoming interested for the unhappy mother of the infant, whose distress was greatly augmented by my reluctance to do anything, I resolved to make an effort, if only to quiet her feelings. The first step was directed to the restoration of warmth in the extremities, by carefully wrapping the child in warm flannels and blankets. We next attempted to moisten and lubricate the tongue and fauces, for which purpose a mop of soft, old linen was employed, saturated with simple water, and carefully applied in succession to every part of the arid surfaces. By this simple process, and without the least danger of strangling, the parts were soon so far moistened as to enable us to introduce thick fluids into the stomach, which are always most easily swallowed, such as rice water and the like; though much difficulty was experienced, and not a little danger incurred, during the attempts. I next carefully introduced into the stomach, with a teaspoon, a mixture composed of five grains of tartar emetic, and ten of ipecacuanha, rendered semi-fluid with antimonial wine. This effort was finally successful, but the accomplishment of it was exceedingly difficult. A second dose of the medicines, mixed in the same manner, only augmenting the proportion of tartar to twenty grains, was quickly prepared and administered. After this attempt, a third, and succeeding doses, were prepared and administered, in rapid succession; and I was now emboldened to give a heaping teaspoonful of tartar at each dose, only employing the ipecacuanha and antimonial wine in quantities sufficient to suspend, and render fluent, so large a portion of the tartar. In this manner I proceeded, though not without much difficulty, and with fear and trembling, lest the little patient might strangle, until the full contents of an half ounce phial of tartar emetic, and the same quantities of ipecacuanha and antimonial wine, had been employed—requiring something more than two hours time for the accomplishment of this bold undertaking.

"For ten hours it could not be perceived that the slightest change took place. After this period, the extremities became gradually warmer, and lost in the inverse ratio their livid appearance. The respiration, too, was sensibly relieved, with a corrreponding subsidence of the cough and croupy sound. It was now that the first evidences of abatement of the stupor were manifested, since its commencement; and the little sufferer once more, greatly to the gratification of all, beamed consciousness from its dim eyes, and made known its desires by calling upon its almost heart-broken mother for water. This truce, though of short

duration, did not end in a stupor so profound, as the infant could be roused from time to time; and it could be perceived, too, that it became less and less oppressive and heavy at each succeeding return of it. The symptoms continued from this time to ameliorate sensibly, and without the least evidence that nausea existed—an event to have been expected from such large quantities of emetic medicines then present in the stomach. At the expiration of twelve hours from the time of discontinuing all remedies, except the means for husbanding and promoting the warmth of the still cool extremities, the bowels suddenly gave way, and a most active and rapidly repeated catharsis came one. This continued with little abatement for six or seven hours; with its accession, the comatose symptoms disappeared; and by the third hour of its duration, every symptom of the original disease had greatly ameliorated. In six or seven hours from the commencement of the catharsis, the child was perfectly relieved of every sign of croup; only exhibiting a mucous rhonchus when it coughed. The catharsis was suffered to take its course, though mucilaginous drinks and free dilution with warm milk greatly moderated its painful tormina and gripings. It was succeeded by a diarrhœa, which continued two or three days, emitting occasionally sanguineous tingings of the dejections, attended with a very slight prolapsus ani. The continuation of the milk diet, and mucilaginous drinks, with occasional doses of oil, finally relieved the affection of the bowels: in two weeks the infant perfectly recovered, except slight debility."

Well may the author observe that the preceding case "furnishes new evidence of the astonishing resources of the infantile constitution, and its [the infantile constitution] *tenaciousness of life*, in many of its violent diseases." The author is, we conceive, equally correct in terming the cure "accidental," but we cannot coincide with him in the following opinion: "Had the treatment in the case here reported," he observes, "been only bold and energetic in the common acceptation of the terms, the child must certainly have perished; nothing but a plan of treatment characterized by the extreme degree of temerity, or ultra energetic, could have arrested so formidable a disease." This very case is calculated to inspire us with the highest estimate of the remedial powers of nature. But we will not pursue the subject. The case is particularly valuable if properly viewed, for the reflections to which it is likely to give rise.

We had just finished writing the preceding remarks when we received an urgent message, requesting our immediate attendance on a child represented as dying. We found the little patient, a girl 3 years of age, almost pulseless, her skin cold and covered with a clammy sweat, and her countenance ghastly. We were informed that she had been attacked with croup, and that the mother had given her Coxe's hive syrup, at first in doses of 15 drops at intervals, and finding that this did not vomit her, had increased the dose. The whole quantity taken was but little more than half an ounce. Vomiting finally came on—this was followed by purging, and she had been operated on almost incessantly in this way for two hours, when the parents became alarmed and sent for us. A mustard pediluvium, a mustard sinapism to the stomach, and cold green tea—a teaspoonful at intervals—soon brought on a reaction and quieted the stomach; and at our visit seven hours afterwards, we found our patient playing with her toys; and the next day was perfectly well. Here all the symptoms of poisoning with tartar emetic were produced by little more than half a grain of this article, administered through a space of upwards of 30 hours, and in a child much older than in the subject of the case commented on.

Tribute of Respect to Professor Mott *on the eve of his departure for Europe.*—Our distinguished collaborator, Professor Mott, has been compelled to return to Europe. His health, which had been completely re-established during his late residence there, has a second time given way under the fatigues and anxieties of an extensive practice. A number of gentlemen who had graduated from his office, having resolved to obtain his portrait, prior to his sailing, appointed a committee to inform Dr. Mott, who accordingly sat to Mr. Inman for that purpose.—After the picture was completed, a large number of the profession assembled at the Governor's Room of the New York Hospital, on Saturday afternoon, the 17th Sept. to see the Portrait, and hear the reading of the following Address to Dr. Mott, in the presence of its signers. The reply, which was delivered under the influence of the deepest feeling, by which he was prevented for some time from

proceeding, is highly appropriate; and at its conclusion, the Doctor was so completely overcome by his emotions, as to be obliged to retire hastily from the salutations of his attached friends.

The peculiarity of the occasion, the associations awakened, the place of the occurrence, and the character of Dr. Mott, private and professional, conspired to render the scene in the highest degree impressive and interesting. The testimonial of regard thus spontaneously offered, reflects the greatest honour both upon the preceptor and his pupils. We join with them in wishing him a speedy restoration to health and to his own home.

Valentine Mott, M. D.

Sir,—We, your former pupils, associating with the period during which we were students in your office, some of the dearest recollections of our lives, beg leave to thank you for the readiness with which, at considerable inconvenience to yourself, you consented to oblige us by sitting for your portrait. Having ever entertained the utmost respect for your moral character, gratitude and affection for your uniform kindness and affability towards us, and the most exalted opinion of your medical reputation, we deely sympathise with you in, and regret the painful necessity which again compels you, after so very brief an interval, to seek in a foreign land the health which is denied to you here. Scarcely have our pleasurable emotions at your safe return subsided, ere we are again informed of your sudden departure from among us, and for an indefinite period.

Under these circumstances, sir, it was resolved at a meeting of your numerous pupils, to obtain this memorial of our respected preceptor, by which, in his absence, we might recall forcibly to our recollection the features of one so dear to our hearts.—The eminent artist by whom the picture has been executed has done perfect justice to our feelings, to his subject, and to himself. If it should not displease the great Disposer of events in his wisdom, to permit us to behold the original once more, we shall at last possess the *vera effigies* of the friend to whom we were united by the most kindly ties, of the instructor by whose wise counsel and brilliant example we had profited so often, of the surgeon of whose fame, not we alone, but his country and the world have reason to be proud. We will cause it, sir, to be suspended in company with the resemblances of the departed Bard, Post, Mitchel and Hosack, your illustrious cotemporaries, from these walls of the Library of this Institution, of which, for nearly thirty years, you have been one of the greatest ornaments; in which, your gentleness and consummate skill have been so long displayed; which is the scene of some of those great triumphs, that have stamped your name for ever in bright and indelible characters on the pages of Surgical History. Thence it will be gazed upon with pleasure, by all who have known your person or your reputation, affording a useful model for the imitation of the rising generation, and a proof of the regard of those by whom it was given.

You carry with you, Sir, in your approaching departure, our affectionate regrets. We shall look with the deepest anxiety for accounts of your welfare, and for the period, not, we trust, very far distant, when you will return to resume your lofty rank in your profession, and again dispense to the community, unchecked by further interruption, the benefits of your unexceeded skill and experience. We unfeignedly hope, that there is yet before you a long career of usefulness, in which your just fame, so sacred in your eyes, will, if it cannot be increased, be at least sustained.

With most sincere wishes for the complete restoration of your own health, and the preservation of that your family; with every sentiment of esteem and affection, and recommending you to the protection of a merciful Father, we bid you sir, a sorrowful Farewell.

David L. Rogers; Lawrence Proudfoot; Ebenezer Storer; Augustus A. Adee, U. S. N.; John M. Cornelison; John C. Fanning; John W. Schmidt, Jr.; Minturn Post; James B. Kissam; Wm. Currie Roberts; James Quackinbush; Wm. A. Mathews; George W. Hodgson; John T. Kneeland; Richard F. Cooke; John Carnoghan; D. Masterton Schoonmaker; Albert G. Greenly; James Bolton; James Mason.

Dr. Mott's Reply.

"Gentlemen,—Neither time nor circumstance, can ever efface the grateful recol-

lections of this day. They will sink deeper and remain more lastingly associated with my best feelings, than any event of my life. The warm and generous sentiments which you now express, and the lofty encomiums you bestow on my professional character, I could humbly wish better to deserve. May you all, my friends and pupils, receive and merit a more abundant meed of praise.

If my feeble exertions and example, be in the least meritorious, and worthy of imitation, I entreat you in kindness and affection to enter the field; lend a helping hand, and cultivate it. My day of labour at present is over, perhaps never to return.—The mental and bodily fatigues of thirty winters, have broken my health, and I now retire as a bruised reed, almost useless. Reluctantly indeed, I leave the scene of action, my country and my home. I do it only from a paramount sense of the duty I owe myself and my family; and with a strong hope that time, leisure and relaxation will restore my wonted energies to their usual vigour. As soon as this shall be accomplished, it is my intention to return to the land of my birth, and the exercise of my profession.

Adieu, my friends—that the God of Heaven may prosper you in every good undertaking, is the wish of him, who now bids you a sincere and an affectionate Farewell."

—

Dr. Littell's Manual of the Diseases of the Eye.—We recommend this very neatly printed little volume to the attention of the profession. From the cursory examination we have been able to give it, it appears to exhibit in a compendious form, the usual symptom of the various affections of the eyes and the principal remedies and operations resorted to for their relief. The style may be commended for its clearness and perspicuity. We shall probably notice it more particularly hereafter.

—

University of Pennsylvania.—Four hundred and one students have matriculated the present session in the medical department of this institution.

—

Transylvania University.—The number of medical students in this institution the present session is 242.

—

College of Physicians and Surgeons of the Western District of the State of New York, in Fairfield, Herkimer county.—There were 164 students the past session (1836–7) in this school. At the commencement, on the 2nd February, 1836, the degree of M. D. was conferred upon 30.

—

Lithotripsy.—Dr. Randolph has twice performed the operation of lithotripsy since the publication of our last number. We are promised reports of these cases for our next.

—

Properties of Caoutchouc as an external irritant.—Dr. Chase, in a paper recently read before the Philadelphia Medical Society, extols the efficacy of sheet caoutchouc as an application for the relief of chronic local pains, gout, rheumatism, &c. He employs the sheet caoutchouc, which is applied to the painful part and secured with a common roller bandage, or adhesive strips. In a few days, considerable redness of the skin is produced, followed by a vesicular eruption, the vesicles of which vary from the size of a pin's head to that of a small pea. Further experiments should be made with this article.

—

Select Medical Library and Eclectic Journal of Medicine.—This is the title of a periodical publication recently commenced in this city by Messrs. Haswell & Barrington, and edited by Dr. John Bell. It appears in monthly numbers of 240 pages each, of which 36 are devoted to journal matter, and the remaining 204 to the reprint of some medical work. The first work that has been selected is the Lectures on the Practice of Medicine, by the late Dr. Armstrong; and this is to be followed by Observations on the principal Medical Institutions of the continent of Europe, by Edwin Lee. Dr. Bell has much experience as an editor, and is an industrious student. Subscription $10 per annum.

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In consequence of the extended circulation of the American Journal of the Medical Sciences, the Proprietors intend, in compliance with the wishes of many of their friends, to prefix to each No. a Sheet of Advertisements. All Booksellers, Medical Gentlemen, and others desirous of taking advantage of this mode of announcement, will please address their Advertisements to Carey, Lea & Blanchard, Philadelphia, by the 10th day of the month preceding that of the publication of the Journal, viz. on 10th July, 10th October, 10th January, and 10th April.

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